

STIC-Biotech/ChemLib

6/6/02

From: Hutzell, Paula  
Sent: Tuesday, May 14, 2002 3:14 PM  
To: STIC-Biotech/ChemLib; Spector, Lorraine  
Subject: FW: RUSH SEARCH request for Serial No. 09/575199

please rush

-----Original Message-----

From: Spector, Lorraine  
Sent: Tuesday, May 14, 2002 2:49 PM  
To: Hutzell, Paula  
Subject: RUSH SEARCH request for Serial No. 09/575199

Paula,  
Would you please authorize the following RUSH search?  
Reason: Amended, sequence only recently entered

STIC,  
Serial Number:09/575199  
Please search SEQ ID NO:2, residues 1-116.  
-pending  
-issued  
-commercial

Thanks.

Lorraine Spector  
703-308-1793  
U.S. Patent and Trademark Office  
Art Unit 1646  
lorraine.spector@uspto.gov  
CM1-10B11

10001

RECEIVED  
MAY 14 2002  
STIC

TYPE OF SEARCH:		VENDOR/COST(where applic.)
Searcher: <u>D. Schreiber</u>	NA Sequences: _____	STN: _____
Phone: <u>308-4292</u>	AA Sequences: <u>1</u>	DIALOG: _____
Location: <u>CM1 6A03</u>	Structures: _____	Questel/Orbit: _____
Date Picked Up: <u>5/17</u>	Bibliographic: _____	DRLink: _____
Date Completed: <u>5/20</u>	Litigation: _____	Lexis/Nexis: _____
Searcher Prep/Review: <u>7</u>	Full text: _____	Sequence Sys.: <u>CompuGen</u>
Clerical: _____	Patent Family: <u>1</u>	WWW/Internet: _____
Online time: <u>5</u>	Other: _____	Other (specify): _____

GenCore version 4.5  
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OM protein - protein search, using sw model

Run on: May 17, 2002, 07:36:43 ; Search time 77.7 Seconds  
(without alignments)  
165.824 Million cell updates/sec

Title: US-09-575-199-2\_COPY\_1\_116  
Perfect score: 654  
Sequence: 1 MNFLSWHWSLALLYLHH.....TEESNITMQIMRIKPHQGH 116

Scoring table: BLOSUM62  
Gapop 10.0 , Gapext 0.5

Searched: 747574 seqs, 111073796 residues

Total number of hits satisfying chosen parameters: 747574

Minimum DB seq length: 0  
Maximum DB seq length: 200000000

Post-processing: Minimum Match 0%  
Maximum Match 100%  
Listing first 45 summaries

Database : A\_Geneseq\_032802:\*

1:	/SIDS1/gcgdata/geneseq/geneseqp-emb1/AA1980.DAT:*
2:	/SIDS1/gcgdata/geneseq/geneseqp-emb1/AA1981.DAT:*
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22:	/SIDS1/gcgdata/geneseq/geneseqp-emb1/AA2001.DAT:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	ID	Description
1	654	100.0	147	16	Human vascular end
2	654	100.0	147	17	VEGF121. Homo sap
3	654	100.0	147	19	AAW62524
4	654	100.0	147	21	VEGF encoded by c1
5	654	100.0	147	21	AAY69412
6	654	100.0	147	21	AAV83033
7	654	100.0	147	22	AAV83033
8	654	100.0	147	22	AAV83033
9	654	100.0	147	22	AAV83033
10	654	100.0	147	22	AAV83033
11	654	100.0	147	22	AAV83033

12	654	100.0	174	22	AAW82531	Vascular endotheli
13	654	100.0	188	20	AAV43484	Amino acid sequenc
14	654	100.0	191	11	AAW80002	Human vascular end
15	654	100.0	191	16	AAW91076	Human vascular end
16	654	100.0	191	17	AAW00724	Vascular endotheli
17	654	100.0	191	17	AAW94002	VEGF165. Homo sap
18	654	100.0	191	19	AAW69331	Human VEGF protein
19	654	100.0	191	19	AAW62525	Amino acid sequenc
20	654	100.0	191	20	AAV33439	Parapox virus VEGF
21	654	100.0	191	21	AAW28232	Wild-type human VE
22	654	100.0	191	21	AAV90403	VEGF encoded by c1
23	654	100.0	191	21	AAV69414	Amino acid sequenc
24	654	100.0	191	21	AAV83035	Human vascular end
25	654	100.0	191	22	AAW08401	Human VEGF-A polyp
26	654	100.0	191	22	AAW84603	Amino acid sequenc
27	654	100.0	191	22	AAW31562	Amino acid sequenc
28	654	100.0	191	22	AAV97568	Human VEGF protein
29	654	100.0	191	22	AAW50433	Human VEGF165. Ho
30	654	100.0	208	20	AAV43483	Amino acid sequenc
31	654	100.0	213	21	AAV83036	Human vascular end
32	654	100.0	213	22	AAW50434	Human VEGF189. Ho
33	654	100.0	215	11	AAW05102	Human vascular per
34	654	100.0	215	16	AAW91077	Human vascular end
35	654	100.0	215	17	AAW94003	VEGF189. Homo sap
36	654	100.0	215	19	AAW62526	Amino acid sequenc
37	654	100.0	215	21	AAW10645	Human VEGF protein
38	654	100.0	215	21	AAV90404	VEGF encoded by c1
39	654	100.0	215	21	AAV69415	Amino acid sequenc
40	654	100.0	215	21	AAV94803	Human VEGF. Homo
41	654	100.0	215	21	AAV57035	Human A215 amino a
42	654	100.0	215	22	AAW37512	Human VEGF C subun
43	654	100.0	232	16	AAW91078	Human vascular end
44	654	100.0	232	17	AAW94004	VEGF206. Homo sap
45	654	100.0	232	19	AAW62527	Amino acid sequenc

ALIGNMENTS

RESULT	ID	AAW91075	standard; Protein; 147 AA.
XX	AAW91075;		
AC	AAW91075;		
DT	14-MAY-1996	(first entry)	
XX			
DE	Human vascular endothelial growth factor-121, VEGF-121.		
XX			
KW	Conjugate; growth factor; FGF; cytotoxin; saporin; eye; regulation;		
KW	cell proliferation; psoriasis; pterygia; corneal clouding; cancer;		
KW	rheumatoid arthritis; vascular endothelial; fibroblast; epidermal;		
KW	heparin binding.		
XX			
OS	Homo sapiens.		
XX			
FH	Key	Location/Qualifiers	
FT	Peptide	1..26	
FT		/Label- sig_peptide	
FT	Protein	27..147	
FT		/Label- VEGF-121	
XX			
PN	WO9524928-A2.		
XX			
PD	21-SEP-1995.		
XX			
PF	15-MAR-1995;	95WO-US03448.	
XX			
PR	15-MAR-1994;	94US-0213447.	
PR	15-MAR-1994;	94US-0213446.	
XX			
PA	(PRIZ-) PRIZM PHARM INC.		
XX			

PI Baird JA, Houston LL, Nova MP, Sosnowski BA;  
XX  
DR WPI; 1995-336820/43.  
DR N-PSDB; AAQ99080.  
XX  
PT New conjugates of growth factor receptor ligand and targeted agent  
PT - partic. DNA or cytotoxin, used to control cell proliferation in  
PT the eye, e.g. to prevent growth of pterygi and corneal clouding  
XX  
PS Disclosure; Page 184-185; 204pp; English.  
XX  
CC AAR91075-R91078 are human vascular endothelial growth factors (VEGFs).  
CC DNA encoding a VEGF can be used to create a fusion protein (FP),  
CC the cDNA of which includes a nucleic acid binding domain (NABD) and  
CC encodes a heparin binding growth factor, HEPGF (e.g. VEGF, FGF, HBEGF),  
CC a protein synthesis inhibitor and opt. a linker imparting flexibility  
CC to the FP. The FP can be used to target a protein synthesis inhibitor,  
CC an antisense DNA sequence or an inhibitor of elongation factor 2, to a  
CC cell carrying a HEPGF receptor. The conjugates of the invention are  
CC used to inhibit cell proliferation in cells carrying the particular  
CC growth factor receptor. A specific application is to prevent  
CC excessive proliferation of epithelial cells, fibroblasts and  
CC keratinocytes in the anterior eye after surgery, partic. to prevent  
CC recurrence of pterygi after surgical removal, closure of  
CC trabeculectomy after glaucoma surgery and corneal clouding after  
CC excimer laser treatment. Other conditions which may be treated include  
CC tumours, restenosis, psoriasis, Dupuytren's contracture, diabetic  
CC complications, Kaposi's sarcoma and rheumatoid arthritis.  
XX  
SQ Sequence 147 AA;

Query Match 100.0%; Score 654; DB 16; Length 147;  
Best Local Similarity 100.0%; Pred. No. 7.5e-65;  
Matches 116; Conservative 0; Mismatches 0; Indels 0; Gaps 0;  
QY 1 MNFLSWVHWSLALLLYLHNAKWSQAAPMAEGGGQNHHEVVKFMDVYQRSYCHPIETLVD 60  
Db 1 mnflswvhwslalllylhbkwsqaapmaegggqnhhevkvfmdvygrsychnpietlvd 60  
QY 61 IFQEYRDEIEYIFKPSQVPLMRGCGCCNDEGLECVPTESNITMQIMRIKPHOGH 116  
Db 61 ifqeyrdeieyifkpscvplmrccgcndeglecvpteesntmqimrikphgqh 116

RESULT 2

AAR94001  
ID AAR94001 standard; Protein; 147 AA.  
XX  
AC AAR94001;  
XX  
DT 09-OCT-1996 (first entry)  
XX  
DE VEGF121.  
XX  
KW Vascular endothelial growth factor; VEGF; human; conjugate; tumour; iris;  
KW proliferation inhibition; VEGF-mediated pathophysiological condition;  
KW dermatological disorder; VEGF receptor; vascular proliferation; retina;  
KW ophthalmic disorder; hyperproliferating blood vessel; therapy; psoriasis;  
KW conjunctiva; vitreous humour; rheumatoid arthritis; skin cancer;  
KW varicose veins; gene therapy.  
XX  
OS Homo sapiens.  
XX  
PN WO9606641-A1.  
XX  
PD 07-MAR-1996.  
XX  
PF 29-AUG-1995; 95WO-US10973.  
XX  
PR 16-MAY-1995; 95US-0441979.  
PR 29-AUG-1994; 94US-0297961.  
XX

PA (PRIZ-) PRIZM PHARM INC.  
XX  
PI Fleurbaaij GA, Freund E, Houston LL, Nova MP, Sosnowski BA;  
PI Victor KD;  
XX  
DR WPI; 1996-160151/16.  
DR N-PSDB; AAT17613.  
XX  
PT Vascular endothelial cell growth factor (VEGF) conjugates - having  
PT VEGF linked to targeted agent, used for inhibiting proliferation of  
PT cells, e.g. for gene therapy  
XX  
PS Disclosure; Page 122-123; 193pp; English.  
XX  
CC AAR94001-R94004, AAR94031, AAR94032, AAR94039 and AAR94040 represent  
CC vascular endothelial growth factors (VEGF). This sequence represents  
CC VEGF121. These sequences were used in VEGF conjugates of the invention.  
CC In the conjugates, VEGF (or fragments of it) are linked to a targeted  
CC agent (this can be via a linker sequence), so that the conjugate binds to  
CC a VEGF receptor. Cys-modified forms of VEGF are particularly suitable  
CC for chemical conjugation to linkers and targeted agents. The conjugates  
CC are used for inhibiting proliferation of cells bearing VEGF receptors.  
CC They can be used for treating a VEGF-mediated pathophysiological  
CC condition, including dermatological disorders with underlying vascular  
CC proliferation, solid tumours or an ophthalmic disorder of  
CC hyperproliferating blood vessels of the retina, iris, conjunctiva or  
CC vitreous humour. The conjugates can also be used for treating  
CC psoriasis, rheumatoid arthritis, skin cancers and other tumours, or  
CC varicose veins. They are also suitable for use in gene therapy.  
XX  
SQ Sequence 147 AA;

Query Match 100.0%; Score 654; DB 17; Length 147;  
Best Local Similarity 100.0%; Pred. No. 7.5e-65;  
Matches 116; Conservative 0; Mismatches 0; Indels 0; Gaps 0;  
QY 1 MNFLSWVHWSLALLLYLHNAKWSQAAPMAEGGGQNHHEVVKFMDVYQRSYCHPIETLVD 60  
Db 1 mnflswvhwslalllylhbkwsqaapmaegggqnhhevkvfmdvygrsychnpietlvd 60  
QY 61 IFQEYRDEIEYIFKPSQVPLMRGCGCCNDEGLECVPTESNITMQIMRIKPHOGH 116  
Db 61 ifqeyrdeieyifkpscvplmrccgcndeglecvpteesntmqimrikphgqh 116

RESULT 3

AAW62524  
ID AAW62524 standard; Protein; 147 AA.  
XX  
AC AAW62524;  
XX  
DT 11-SEP-1998 (first entry)  
XX  
DE Amino acid sequence of human VEGF-121.  
XX  
KW Human; vascular endothelial growth factor; VEGF; production;  
KW nitric oxide; prostacyclin; treatment; prevention; intimal hyperplasia;  
KW blood vessel; essential hypertension; pulmonary arterial hypertension;  
KW PAH; cor pulmonale; atherosclerosis; (re)stenosis; angioplasty;  
KW coronary bypass operation; anastomosis; endarterectomy.  
XX  
OS Homo sapiens.  
XX  
PN WO9820027-A2.  
XX  
PD 14-MAY-1998.  
XX  
PF 03-NOV-1997; 97WO-GB03015.  
XX  
PR 21-AUG-1997; 97GB-0017791.  
PR 01-NOV-1996; 96GB-0022852.  
PR 09-MAY-1997; 97GB-0009494.  
XX

XX PA (EURO-) EUROGENE LTD.  
XX PI Barker SGE, Martin JF, Yia-Hertuala S;  
XX DR WPI; 1998-286857/25.  
XX DR N-PSDB; AAV38450.  
XX PT Treatment or prevention of intimal hyperplasia by stimulating  
PT production of nitric oxide - by administration of vascular  
PT endothelial growth factor, useful for, e.g. treating or preventing  
PT intimal hyperplasia  
XX PS Claim 8; Page 54; 70pp; English.  
XX CC The present sequence represents human vascular endothelial growth factor  
CC 121 (VEGF-121). VEGF stimulates production of nitric oxide and  
CC prostacyclin. VEGF can therefore be used for treatment or prevention  
CC of intimal hyperplasia in a blood vessel. VEGF can be used for treating  
CC or preventing any condition responsive to in vivo stimulation of  
CC nitric acid and prostacyclin (especially essential hypertension,  
CC pulmonary arterial hypertension (PAH), cor pulmonale and  
CC atherosclerosis. VEGF is specifically used to control (re)stenosis,  
CC where caused by PAH or by a surgical procedure such as angioplasty,  
CC coronary bypass operation, anastomosis or endarterectomy.  
XX SQ Sequence 147 AA;

Query Match 100.0%; Score 654; DB 19; Length 147;  
Best Local Similarity 100.0%; Pred. No. 7.5e-65;  
Matches 116; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 1 MNFLSWHMSLALLYLHNAKWSQAAPMAEGGGONHHEVVKFMDVYQRSYCHPIETLVD 60  
Db 1 mnlflswhwsialllylhakwsqaapmaegggqnhhevkvfmdvyqrsychpietlvd 60  
OY 61 IFQEXPDEIEYIFKPSVCVPLMRCGGCCNDEGLECVPTESNITMOMIRIKPHOGQH 116  
Db 61 lfqeypdeieylfkpscvplmrcggccndeglecvpteesnltmqimrikphgqgh 116

RESULT 4  
AAV90402  
ID AAV90402 standard; Protein; 147 AA.  
XX AC AAV90402;  
XX DT 18-JUL-2000 (first entry)  
XX DE VEGF encoded by clone VEGF121, SEQ ID NO:1.  
XX KW Targetted gene delivery; fibroblast growth factor receptor;  
KW FGFR-binding protein; nucleic acid binding protein;  
KW receptor-internalised ligand; cytotoxin; saporin; gene therapy;  
KW cytocide; antiproliferative; cancer; melanoma; diabetic retinopathy;  
KW rheumatoid arthritis; restenosis, Dupuytren's contracture; psoriasis;  
KW eczema; heparin-binding epidermal growth factor; HBEGF;  
KW vascular endothelial growth factor; VEGF.  
XX OS Unidentified.  
XX PN US6037329-A.  
XX PD 14-MAR-2000.  
XX PF 24-SEP-1996; 96US-0718904.  
XX PR 15-MAR-1994; 94US-0213446.  
XX PR 15-MAR-1994; 94US-0213447.  
XX PR 29-AUG-1994; 94US-0297961.  
XX PR 13-SEP-1994; 94US-0305771.  
XX PR 16-MAY-1995; 95US-0441979.

XX PA (SELE-) SELECTIVE GENETICS INC.  
XX PI Chandler LA, Sosnowski BA, Baird JA;  
XX DR WPI; 2000-292008/25.  
XX DR N-PSDB; AAA12853.  
XX PT Gene delivery system, useful for treating or preventing cancer and  
PT rheumatoid arthritis, comprises receptor-internalized ligand linked to  
PT nucleic acid binding domain and nucleic acid  
XX PS Disclosure; Columns 83-84; 131pp; English.

CC The invention relates to a novel gene delivery composition for the  
CC targetted delivery of cytotoxins or produg-converting enzymes to  
CC proliferating cells. The gene delivery composition comprises a protein  
CC that binds the fibroblast growth factor receptor (FGFR) which is fused  
CC or chemically conjugated to a nucleic acid binding domain. The nucleic  
CC acid binding domain is complexed with a suitable expression construct  
CC encoding a cytotoxin such as saporin. One or more linkers may join the  
CC FGFR-binding protein to the nucleic acid binding protein. These are  
CC selected to increase the specificity, toxicity, solubility, serum  
CC stability or intracellular availability, and may serve to promote  
CC condensation of nucleic acids for delivery to a cell. The fusion protein  
CC binds to FGFR and is internalised by cells that carry this receptor. The  
CC gene delivery composition is used for the therapeutic alteration of the  
CC function, gene expression and viability of cells. In particular, it may  
CC be used for the treatment and prevention of cell proliferative  
CC disorders, for example after eye surgery, melanoma and many other sorts  
CC of cancer, rheumatoid arthritis, restenosis, Dupuytren's contracture,  
CC diabetic retinopathy, psoriasis and eczema. The gene delivery  
CC compositions of the invention have high specificity for particular cells  
CC and can deliver larger amounts of DNA compared to prior art methods.  
CC Sequences AAA12853- AAA12856 represent cDNA clones encoding vascular  
CC endothelial growth factor (VEGF), and sequences AAV90402-Y90405 represent  
CC the encoded VEGF proteins. AAA12857 represents cDNA encoding human  
CC heparin-binding epidermal growth factor (HBEGF) precursor, and  
CC AAV90406-Y90409 represent HBEGF precursor and mature proteins.  
XX SQ Sequence 147 AA;

Query Match 100.0%; Score 654; DB 21; Length 147;  
Best Local Similarity 100.0%; Pred. No. 7.5e-65;  
Matches 116; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 1 MNFLSWHMSLALLYLHNAKWSQAAPMAEGGGONHHEVVKFMDVYQRSYCHPIETLVD 60  
Db 1 mnlflswhwsialllylhakwsqaapmaegggqnhhevkvfmdvyqrsychpietlvd 60  
OY 61 IFQEXPDEIEYIFKPSVCVPLMRCGGCCNDEGLECVPTESNITMOMIRIKPHOGQH 116  
Db 61 lfqeypdeieylfkpscvplmrcggccndeglecvpteesnltmqimrikphgqgh 116

RESULT 5  
AAV69412  
ID AAV69412 standard; Protein; 147 AA.  
XX AC AAV69412;  
XX DT 03-JUL-2000 (first entry)  
XX DE Amino acid sequence of vascular endothelial growth factor 121.  
XX KW Human; vascular endothelial growth factor; VEGF 121; angiogenic factor;  
KW blood vessel injury; vascular injury; microvascular angiopathy;  
KW thrombotic microangiopathy; kidney disease; haemolytic uremic syndrome;  
KW toxic shock syndrome; venom; hypercoagulable state; platelet activation;  
KW platelet aggregation; thrombosis; preclampsia; sepsis; pancreatitis;  
KW intravascular coagulation; thrombotic thrombocytopenia purpura;  
KW acute renal failure; myocardial infarction; ischemic bowel disease;



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KM stroke; hypoxia; hypercapnia; fibrosis; toxic alveolar injury;
KM acute respiratory distress syndrome; pneumonia; pulmonary emboli;
KM birth prematurity disorder; wound; allergy; hypersensitivity;
KM autoimmune disease; organ transplant; focal glomerulosclerosis;
KM amyloidosis.
XX
OS Homo sapiens.
XX
PN WO200013702-A2.
XX
PD 16-MAR-2000.
XX
PF 09-SEP-1999; 99WO-US20480.
XX
PR 09-SEP-1998; 98US-0099694.
PR 26-MAR-1999; 99US-0126406.
PR 27-MAR-1999; 99US-0126615.
XX
PA (SCIO-) SCIOS INC.
XX
PI Schreiner GF, Johnson RJ;
XX
DR WPI: 2000-256861/22.
XX
DR N-PSDB; AA299544.
XX
PT Novel methods and compositions for the prevention and treatment of
PT microvascular angiopathies by administration of angiogenic factors such
PT as vascular endothelial growth factor (VEGF)
XX
PS Disclosure; Fig 3; 46pp; English.
XX
XX The present sequence represents native human vascular endothelial growth
CC factor (VEGF) 121. VEGF is an angiogenic factor. VEGF proteins are used
CC for the prevention or repair of injury to blood vessels or associated
CC nonvascular tissues (served by the blood vessels) and for the prevention
CC and repair of vascular injury associated with microvascular angiopathy,
CC particularly thrombotic microangiopathy. The proteins methods may also
CC be used for the prevention and treatment of kidney diseases associated
CC with injury to, or atrophy of, the vasculature of the glomerulus and
CC interstitium. Conditions which may be treated include haemolytic uremic
CC syndrome, toxic shock syndrome, venom exposure, chemical exposure,
CC hypercoagulable states, platelet activation or aggregation, thrombosis,
CC preclampsia, thrombotic thrombocytopenia purpura, disseminated
CC intravascular coagulation, sepsis, pancreatitis, acute renal failure,
CC myocardial infarction, ischemic bowel disease, transient ischemic
CC attacks, stroke, hypoxia or hypercapnia or fibrosis arising from lung
CC endothelium injury, acute respiratory distress syndrome, toxic alveolar
CC injury, pneumonia, pulmonary emboli, birth prematurity disorders,
CC wounds, allergic reactions, hypersensitivity, autoimmune diseases, organ
CC transplants, focal glomerulosclerosis, and amyloidosis.
XX
SQ Sequence 147 AA;

Query Match 100.0%; Score 654; DB 21; Length 147;
Best Local Similarity 100.0%; Pred. NO. 7.5e-65;
Matches 116; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 1 MNFLSWVHMSIALLLYLHAKWSOAPMAEGGQNHHEVVKEMDYORSYCHPIETLVD 60
   |||||||
DB 1 mnlflswvhwslallllhahkwsqaapmaegggqnhhevklmdvygrsychnpietlvd 60
   |||||||

OY 61 IFQEXYDEIEYIFKPSCVPLMRGCGCCNDEGLCEVPTESNTMQIMRIKPHOGQH 116
   |||||||
DB 61 lffgeypdeleyifkpscvplmrccgcndeglecvpteessntlmqimrikphgqgh 116
   |||||||

RESULT 6
AY83033
ID AAY83033 standard; Protein; 147 AA.
AC AAY83033;
XX

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DT	04-JUL-2000	(first entry)
XX		
DE	Human vascular endothelial growth factor (hVEGf121).	
XX		
KW	Vascular endothelial growth factor; human; angiogenesis; VEGF;	
KW	capillary formation; hypertension; treatment; kidney; CNS; stroke;	
KW	meningitis; central nervous system; tumour; infection; bone growth;	
KW	hypoxia; hypercapnia; fibrosis; inflammatory bowel disease;	
KW	diarrhoea; allografts; cardiac valve.	
OS	Homo sapiens.	
XX		
PN	WO200013703-A2.	
XX		
PD	16-MAR-2000.	
XX		
PF	09-SEP-1999; 99WO-US20481.	
XX		
PR	09-SEP-1998; 98US-0099694.	
XX		
PR	26-MAR-1999; 99US-0126406.	
PR	27-MAR-1999; 99US-0126615.	
XX		
PA	(SCIO-) SCIOS INC.	
XX		
PI	Schreiner GF, Johnson RJ;	
XX		
DR	WPI; 2000-256862/22.	
XX		
DR	N-PSDB; AAZ93345.	
PT	Novel methods for treating hypertension by administering a factor which	
PT	increases angiogenesis and/or vascular permeability	
XX		
PS	Claim 5; Figure 6; 51pp; English.	
XX		
CC	Administering vascular endothelial growth factor (VEGF) can be used	
CC	for treating hypertension (especially salt-dependent hypertension)	
CC	Adminstration of VGEF promotes angiogenesis and/or vascular or	
CC	capillary permeability. The method is also useful in treating	
CC	disorders related to abnormal transport of solutes across endothelial	
CC	cells. Such disorders include the treatment or prevention of kidney	
CC	disease associated with impaired filtration or excretion of solutes;	
CC	the treatment or prevention of diseases of the central nervous system	
CC	associated with alterations in cerebrospinal fluid, e.g. stroke,	
CC	meningitis, tumour, infections, and bone growth disorders; treatment	
CC	or prevention of hypoxia or hypercapnia or fibrosis arising from	
CC	accumulation of fluid secretions in the lungs, e.g. acute respiratory	
CC	distress syndrome, toxic alveolar injury, pneumonia, infections,	
CC	surgical intervention, cystic fibrosis; treatment or prevention of	
CC	pulmonary dysfunction arising from injury to the pulmonary	
CC	endothelium, including disorders arising from premature birth, and	
CC	pulmonary hypertension; treatment or prevention of disease arising	
CC	from disordered transport of fluid and solutes across the intestinal	
CC	epithelium, e.g. inflammatory bowel disease, diarrhoea; treatment or	
CC	prevention of ascites accumulation in the peritoneum; enhancement of	
CC	efficacy of solute flux; preservation or enhancement of function of	
CC	organ allografts; and treatment of cardiac valve disease. This	
CC	sequence is the native human vascular endothelial growth	
CC	factor hVEGF121. The activity of VGEF is mediated by interaction	
CC	with specific receptors on target tissues, most notably the vascular	
CC	endothelium. VGEF exists as five different length monomer chains due	
CC	to alternative splicing of the VGEF RNA transcript. VGEF121 is	
CC	unique among the five forms in that it does not bind to heparin like	
CC	molecules associated with the extracellular matrix.	
XX		
SQ	Sequence 147 AA;	
Query Match	100.0%; Score 654; DB 21; Length 147;	
Best Local Similarity	100.0%; Pred. No. 7.5e-65;	
Matches 116; Conservative	0; Mismatches 0; Indels 0; Gaps 0;	
1	MNFIISWVHWSLALLLYLHNAKMSQAAPMAEGGGONHHEVVKFMDVYQRSYCHPIETLVD 60	

Db 1 mnlslsvhwsialllylhakwsqaapmaeggqgnhvvkfmndvgrsychpietlvd 60  
QY 61 IFQEXPDIEIYIFKPSCVPLMRGCGCCNDEGLECVPTESNITMQIMRIKPHOGQH 116  
Db 61 lfgeypdeleylfkpscvplmrsgcgcndeglecvpteesnltnqimrikphqgqh 116

RESULT 7  
AAB98080  
ID AAB98080 standard; Protein; 147 AA.

AC AAB98080;

DT 16-AUG-2001 (first entry)

DE Human VEGF splice variant VEGF121 protein SEQ ID NO:4.

KW Human; vascular endothelial growth factor; VEGF splice variant; VEGF;  
VEGF121; colon cancer cell line acquired malignancy; anticancer.

OS Homo sapiens.

XX Key Location/Qualifiers

FT Peptide 1..26  
FT /label- signal  
FT Protein 27..147

FT /label- VEGF\_splice\_variant\_VEGF121

PN JP2001061483-A.

PD 13-MAR-2001.

PE 31-AUG-1999; 99JP-0244198.

PR 31-AUG-1999; 99JP-0244198.

PA (EISA ) EISAI CO LTD.

DR WPI; 2001-294711/31.

DR N-PSDB; AAH21876.

PT Human colon cancer cell line is transfected with VEGF gene and selected

PT for having acquired malignancy -

PS Example 1; Page 7; 8pp; Japanese.

XX The present invention describes a method in which the vascular  
CC endothelial growth cell (VEGF) gene is introduced to a human colon  
CC cancer cell showing no malignancy, and a cell line highly expressing  
CC VEGF is selected to get a cell line acquired malignancy. Also described  
CC are: (1) a human colon cancer cell line acquired malignancy by the above  
CC method; (2) WDR cell line acquired malignancy by the above method;  
CC (3) a method for screening an anticancer agent by using the above human  
CC colon cancer cell line, preferably WDR cell line, acquired malignancy;  
CC and (4) a compound screened by the above method. The human colon cancer  
CC cell line acquired malignancy can be used for screening an anticancer  
CC agent. The present sequence represents the human VEGF splice variant  
CC VEGF121, which is used in an example from the present invention.

XX Sequence 147 AA;

Query Match 100.0%; Score 654; DB 22; Length 147;

Best Local Similarity 100.0%; Pred. No. 7.5e-65;

Matches 116; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 MNFLSWVHWSLALLYLHAKWSQAAPMAEGGQGNHHEVVKFMDVYQORSYCHPIETLVD 60

Db 1 mnlslsvhwsialllylhakwsqaapmaeggqgnhvvkfmndvgrsychpietlvd 60

QY 61 IFQEXPDIEIYIFKPSCVPLMRGCGCCNDEGLECVPTESNITMQIMRIKPHOGQH 116

Db 61 lfgeypdeleylfkpscvplmrsgcgcndeglecvpteesnltnqimrikphqgqh 116

RESULT 8  
AAB50427  
ID AAB50427 standard; Protein; 147 AA.

AC AAB50427;

DT 13-MAR-2001 (first entry)

DE Human vascular endothelial growth factor polypeptide.

KW Human; vascular endothelial growth factor; VEGF; VEGF dimer;  
hypotensive; litholytic; nephrotropic; antiarteriosclerotic;  
antiinflammatory; angiogenesis; vascular remodeling; injury; wound;  
peripheral arterial disease; coronary artery disease; hypoxia;  
essential hypertension; microvascular angiopathy; hypercapnia;  
polycystic kidney disease; vascular endothelial cell repair;  
lung disease; kidney disease; inflammatory bowel disease.

OS Homo sapiens.

PN WO200071716-A2.

PD 30-NOV-2000.

PE 18-MAY-2000; 2000WO-US13636.

PR 20-MAY-1999; 99US-0135312.

PR 20-JAN-2000; 2000US-0177407.

PA (SCIO-) SCIOS INC.

PI Jue RA, Scheilenberger U, Stathis PA, Adriaenssens PI, Abraham JA;

PI Baldwin PA, Pollitt NS;

DR WPI; 2001-041064/05.

DR N-PSDB; AAC90473.

PT Vascular endothelial growth factor dimer, useful for treating essential

PT hypertension, polycystic kidney diseases, microvascular angiopathy and

PT coronary artery disease, comprising two monomeric subunits -

PS Example 1; Fig 1; 61pp; English.

XX The present sequence encodes a monomer of a vascular endothelial growth  
CC factor (VEGF) dimer. The dimer comprises a first and a second monomer,  
CC each comprising at least amino acids 11-116 of a defined 147 amino acid  
CC sequence, or a sequence having at least 90% identity to the defined  
CC sequence, and retaining a cysteine at or corresponding to position 116,  
CC which is disulphide-bonded to an additional extraneous cysteine. The  
CC VEGF dimer is useful for inducing angiogenesis and vascular remodeling;  
CC treating peripheral arterial disease, coronary artery disease, essential  
CC hypertension, microvascular angiopathy and polycystic kidney disease,  
CC and repair of vascular endothelial cell layers. It is also useful for  
CC treating injuries, wounds, hypoxia, hypercapnia, pulmonary dysfunction,  
CC kidney diseases, diseases arising from disordered transport of solutes  
CC and fluids across the intestinal epithelium including inflammatory bowel  
CC disease, and disorders due to accumulation of ascites in the  
CC peritoneum.

XX Sequence 147 AA;

Query Match 100.0%; Score 654; DB 22; Length 147;

Best Local Similarity 100.0%; Pred. No. 7.5e-65;

Matches 116; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 MNFLSWVHWSLALLYLHAKWSQAAPMAEGGQGNHHEVVKFMDVYQORSYCHPIETLVD 60

Db 1 mnlslsvhwsialllylhakwsqaapmaeggqgnhvvkfmndvgrsychpietlvd 60

QY 61 IFQEXPDIEIYIFKPSCVPLMRGCGCCNDEGLECVPTESNITMQIMRIKPHOGQH 116

Db 61 ifgeypdeleyifkpscvpplmrcgycndeglecvpteesnltnqimrikphgqh 116  
|||||  
RESULT 9  
AAB50431  
ID AAB50431 standard; Protein; 147 AA.  
XX  
AC AAB50431;  
XX  
DT 13-MAR-2001 (first entry)  
XX  
DE Human VEGF121.  
XX  
KW Human; VEGF; vascular endothelial growth factor; VEGF121; VEGF145;  
KW cardiant; cerebroprotective; hypotensive; nephrotropic; antidiabetic;  
KW dermatological; immunosuppressive; antiinflammatory; cytostatic;  
KW vasotrophic; antibacterial; angiogenesis; vascular remodelling;  
KW vascular disease; kidney disease; diabetes; systemic lupus erythematosus;  
KW meningitis; tumour; infection; lung disease inflammatory bowel disease.  
XX  
OS Homo sapiens.  
XX  
PN WO200071713-A1.  
XX  
PD 30-NOV-2000.  
XX  
PF 18-MAY-2000; 2000WO-US13536.  
XX  
PR 20-MAY-1999; 99US-0135312.  
XX  
PA (SCIO-) SCTOS INC.  
XX  
PI Pollitt NS, Abraham JA;  
XX  
DR WPI; 2001-025162/03.  
DR N-PSDB; AAC90477.  
XX  
PT Enhancing biological activity of vascular endothelial growth factor by  
PT replacing a Cys residue, for producing variant useful for treating  
PT hypertension, stroke, diabetes, lupus, glomerulonephritis, meningitis,  
PT tumor, pneumonia, infections -  
XX  
PS Claim 5; Fig 3; 62pp; English.  
XX  
CC The present sequence is given in a specification relating to a method for  
CC enhancing the biological activity of a vascular endothelial growth factor  
CC (VEGF) originally having a cysteine residue at a position 116 of the 121  
CC amino acid native mature human VEGF. The method comprises eliminating the  
CC cysteine residue to produce a VEGF variant. The variant is useful for  
CC inducing angiogenesis or vascular remodelling, for prevention or repair  
CC of injury to blood vessels, where injury is associated with haemolytic  
CC uraemic syndrome (HUS) or microvascular angiopathy such as thrombotic  
CC microangiopathy (TMA). The VEGF variant is also useful for treatment of  
CC essential hypertension in a patient. The variant is useful for treating  
CC coronary artery disease and/or peripheral arterial disease, to foster  
CC myocardial blood vessel growth and to improve blood flow to the heart. It  
CC is useful for the treatment and prevention of kidney diseases associated  
CC with injury to, or atrophy of, the vasculature of the glomerulus and  
CC interstitium and for the treatment and prevention of acute renal failure,  
CC myocardial infarction, ischaemic bowel disease, transient ischaemic  
CC attacks, stroke, hypoxia, hypercapnia, focal glomerulosclerosis,  
CC amyloidosis, glomerulonephritis, diabetes, systemic lupus erythematosus  
CC or chronic hypoxia/atrophy. It is also useful in the preservation or  
CC enhancement of function of organ allografts and xenografts, and for  
CC treating disorders related to abnormal transport of solutes across  
CC endothelial cells such as meningitis, tumour, infections, disorders of  
CC bone growth, acute respiratory distress syndrome, toxic alveolar injury,  
CC pneumonia, cystic fibrosis, inflammatory bowel disease, infectious  
CC diarrhoea or cardiac valve disease.  
XX  
SQ Sequence 147 AA;

Query Match 100.0%; Score 654; DB 22; Length 147;  
Best Local Similarity 100.0%; Pred. No. 7.5e-65;  
Matches 116; Conservative 0; Mismatches 0; Indels 0; Gaps 0;  
QY 1 MNFLSWVWMSLALLYLHAKWSQAAPMAEGGQNHHEVYKEMDVYQRSYCHPIETLVD 60  
Db 1 mnlflswvhwslalllylhakwsqaapmaegggqnhhevkvkfmdivqrsychpietlvd 60  
QY 61 IFGEYPDEIEYIFKPSVPLMRCGCCNDEGLECVPTESNLTNQIMRIKPHOGQH 116  
Db 61 ifgeypdeleyifkpscvpplmrcgycndeglecvpteesnltnqimrikphgqh 116  
RESULT 10  
AAY43482  
ID AAY43482 standard; Protein; 164 AA.  
XX  
AC AAY43482;  
XX  
DT 26-JAN-2000 (first entry)  
XX  
DE Amino acid sequence of VEGF-A138 protein.  
XX  
KW Vascular endothelial factor; VEGF; VEGF-A138; variant; vascular disease;  
KW cardiovascular disease; vascular cell proliferation; angioplasty;  
KW restenosis; drug permeation; tumour; ischemic condition;  
KW cardiac infarction; chronic coronary ischemia; stroke; wound treatment;  
KW chronic lower limb ischemia; peripheral vascular disease.  
XX  
OS Homo sapiens.  
XX  
FH Key Location/Qualifiers  
FH Peptide 1..27  
FT /note= "secretion signal sequence"  
XX  
PN WO9940197-A2.  
XX  
PD 12-AUG-1999.  
XX  
PF 04-FEB-1999; 99WO-US02425.  
XX  
PR 06-FEB-1998; 98US-0073979.  
XX  
PA (COLL-) COLLATERAL THERAPEUTICS INC.  
XX  
PI Baird A, Andreason G;  
XX  
DR WPI; 1999-600967/51.  
DR N-PSDB; AAZ29996.  
XX  
PT New growth factor variants, useful for treating cardiovascular disease,  
PT especially by stimulating vascular cell proliferation -  
XX  
PS Claim 7; Fig 3; 101pp; English.  
XX  
CC The present sequence represents vascular endothelial factor VEGF-A138.  
CC It is a VEGF-A variant of the invention. The specification describes new  
CC VEGF-A variants in which exon 6a is excluded (other forms which contain  
CC both exon 6a and 6b are also described). The variants have a modified  
CC affinity for matrix and low affinity receptors. This alters the  
CC bioavailability of the proteins when administered directly to cells.  
CC These variants are used to treat vascular disease, especially  
CC cardiovascular disease, by stimulating vascular cell proliferation. They  
CC enhance epithelialisation of diseased vessels, especially after  
CC angioplasty. The re-endothelialisation reduces or prevents restenosis.  
CC They are also useful for enhancing drug permeation by tumours and for  
CC treating ischemic conditions such as cardiac infarction, chronic coronary  
CC ischemia, chronic lower limb ischemia, stroke and peripheral vascular  
CC disease. In addition they may be used to treat wounds.  
XX  
SQ Sequence 164 AA;

Query Match 100.0%; Score 654; DB 20; Length 164;  
Best Local Similarity 100.0%; Pred. No. 8.5e-65;  
Matches 116; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 MNFLSWVHMSLALLYLHAKWSQAAPMAEGGQGNHHEVVKFMDVYQRSYCHPIETLVD 60  
Db 1 mnflswvhsialllylhakwsqaapmaeggggnhhevvkfmdivyqrsychpietlvd 60

QY 61 IFQEYPDEIEYIFKPSVPLMRGCGCCNDEGLECVPTESNITMOIMRIKPHQGQH 116  
Db 61 IfqeypdēeyIfkpscvplmrsgccndēglecvptēesnItmqImrIkphqgqh 116

RESULT 11  
AAY07473  
ID AAY07473 standard; Protein; 171 AA.  
XX  
AC AAY07473;  
XX  
DT 03-AUG-1999 (first entry)  
XX  
DE Human VEGF(145) protein sequence.  
XX  
KW Human;vascular endothelial growth factor; VEGF; vector; stimulation;  
KW angiogenesis; mammal; peripheral; cardiac; tissue; ischaemia; perfusion;  
KW neovascularisation; muscle.  
XX  
OS Homo sapiens.  
XX  
FH Key Location/Qualifiers  
FT Peptide 1..26  
FT Protein /note="signal peptide"  
FT 27..171  
FT /note="mature protein"

XX PN WO9921590-A1.  
XX PD 06-MAY-1999.  
XX PF 23-OCT-1998; 98WO-US222668.  
XX PR 26-NOV-1997; 97GB-0024906.  
XX PR 27-OCT-1997; 97US-0063629.  
XX PA (MERI ) MERCK & CO INC.  
XX PI Bett AJ, Huckle WR, Kendall RL, Thomas KA;  
XX WPI; 1999-302907/25.  
XX DR N-PSDB; AAX57724.  
XX PT Stimulating angiogenesis by expressing vascular endothelial growth  
XX factor  
XX PS Example 1; Fig 2; 46pp; English.  
XX  
CC This sequence represents the 145 amino acid form of human vascular  
CC endothelial growth factor (VEGF(145)). The coding sequence, when  
CC administered in a vector, can be used to stimulate angiogenesis in a  
CC mammal. Administration of the VEGF(145) is used to treat peripheral,  
CC cardiac or other tissue ischaemias, i.e. to increase neovascularisation,  
CC perfusion and performance of ischaemic muscle.  
XX  
SQ Sequence 171 AA;

Query Match 100.0%; Score 654; DB 20; Length 171;  
Best Local Similarity 100.0%; Pred. No. 8.9e-65;  
Matches 116; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 MNFLSWVHMSLALLYLHAKWSQAAPMAEGGQGNHHEVVKFMDVYQRSYCHPIETLVD 60  
|||||

Db 1 mnflswvhsialllylhakwsqaapmaeggggnhhevvkfmdivyqrsychpietlvd 60

QY 61 IFQEYPDEIEYIFKPSVPLMRGCGCCNDEGLECVPTESNITMOIMRIKPHQGQH 116  
Db 61 IfqeypdēeyIfkpscvplmrsgccndēglecvptēesnItmqImrIkphqgqh 116

RESULT 12  
AAB82531  
ID AAB82531 standard; Protein; 174 AA.  
XX  
AC AAB82531;  
XX  
DT 17-SEP-2001 (first entry)  
XX  
DE Vascular endothelial growth factor splice variant VEGF148.  
XX  
KW Vascular endothelial growth factor; VEGF; VEGF148; splice variant;  
KW human; cancer; tumour; antitumour; vascular disease; kidney disease;  
KW arthritis; antiarthritic; glomerulus; therapy.  
XX  
OS Homo sapiens.  
XX  
PN WO200153345-A1.  
XX  
PD 26-JUL-2001.  
XX  
PF 20-JAN-2000; 2000WO-GB00134.  
XX  
PR 20-JAN-2000; 2000WO-GB00134.  
XX  
PA (NBRI-) NORTH BRISTOL NHS TRUST.  
XX  
PI Harper SJ;  
XX WPI; 2001-465370/50.  
XX DR N-PSDB; AAH26082.  
XX  
PT Treating or preventing e.g. tumour growth and metastasis, arthritis,  
PT psoriasis, comprises inducing vascular endothelial growth factor (VEGF)  
PT heterodimer formation in vivo, or administering a pre-formed VEGF  
PT heterodimer  
XX  
PS Claim 3; Page 23; 37pp; English.  
XX  
CC The present sequence is that of novel splice variant VEGF148 of  
CC vascular endothelial growth factor from human glomeruli. VEGF148  
CC cDNA (see AAH26082) shows homology to the VEGF206 sequence for  
CC exons 1-5, but lacks exon 6, and has a 35 bp deletion at the end of  
CC exon 7. The deletion changes the reading frame and a premature  
CC stop codon results, producing the additional deletion of exon 8.  
CC VEGF148 is predicted to act in vivo as a native inhibitor of other  
CC VEGF isoforms. It is expected to form a heterodimer with a monomer  
CC of another VEGF isoform, which renders the other VEGF isoform less  
CC potent. A claimed method of treating or preventing a disease in a  
CC mammalian patient comprises inducing VEGF heterodimer formation in  
CC vivo, or administering a pre-formed VEGF heterodimer to the  
CC mammalian patient. The method is useful for treating or preventing  
CC tumour growth and metastasis, rheumatoid arthritis, psoriasis,  
CC atherosclerosis, diabetic retinopathy, retrolental fibroplasias,  
CC neovascular glaucoma, age-related macular degeneration, haemangiomas,  
CC immune rejection of transplanted corneal tissue and other tissues  
CC and chronic inflammation. Particularly, the method is useful for  
CC treatment of cancer, vascular disease, proteinuric renal disease,  
CC and arthritis, as well neoplastic disorders (e.g. sarcomas,  
CC carcinoma), and non-neoplastic conditions (e.g. chronic inflammation,  
CC pericardial effusion or pleural effusion).  
XX  
SQ Sequence 174 AA;

Query Match 100.0%; Score 654; DB 22; Length 174;



Best Local Similarity 100.0%; Pred. No. 9.1e-65; Matches 116; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

```
OY 1 MNFLLSWVHWSIALLLYLHAKWSQAAPMAEGGQNHHEVVKFMDVYQRSYCHPIETLVD 60
   |||||||
Db 1 mnflswvhwslalllylhakwsqaapmaegsgqnhevkvkfmdivyqrsychpietlvd 60

OY 61 IFOEYPDEIETIFKPSVPLMRCGCGCCNDEGLEECVPTESNITMQIMRIKPHOGH 116
   |||||||
Db 61 lfgeypdeleylfpkpscvplmrcgscndegleecvpteessnltmqimrtpkphgqh 116
```

## RESULT 13

AAV43484  
ID AAV43484 standard; Protein; 188 AA.

XX AAV43484;

DT 26-JAN-2000 (first entry)

DE Amino acid sequence of VEGF-A162 protein.

XX Vascular endothelial factor; VEGF; VEGF-A162; variant; vascular disease;  
KW cardiovascular disease; vascular cell proliferation; angioplasty;  
KW restenosis; drug permeation; tumour; ischemic condition;  
KW cardiac infarction; chronic coronary ischemia; stroke; wound treatment;  
KW chronic lower limb ischemia; peripheral vascular disease.

OS Homo sapiens.

FH Key Location/Qualifiers  
FT Peptide 1..27

FT /note= "secretion signal sequence"

XX WO9940197-A2.

XX PD 12-AUG-1999.

XX PF 04-FEB-1999; 99WO-US02425.

XX PR 06-FEB-1998; 98US-0073979.

XX PA (COLL-) COLLAGEN THERAPEUTICS INC.

XX PI Baird A, Andreason G;

XX DR WPI; 1999-600967/51.

XX DR N-PSDB; AAZ29998.

PT New growth factor variants, useful for treating cardiovascular disease,  
PT especially by stimulating vascular cell proliferation -  
PS Claim 9; Fig 5; 101pp; English.

XX The present sequence represents vascular endothelial factor VEGF-A162.  
CC It is a VEGF-A variant of the invention. The specification describes new  
CC VEGF-A variants in which exon 6a is excluded (other forms which contain  
CC both exon 6a and 6b are also described). The variants have a modified  
CC affinity for matrix and low affinity receptors. This alters the  
CC bioavailability of the proteins when administered directly to cells.  
CC These variants are used to treat vascular disease, especially  
CC cardiovascular disease, by stimulating vascular cell proliferation. They  
CC enhance epithelialisation of diseased vessels, especially after  
CC angioplasty. The re-endothelialisation reduces or prevents restenosis.  
CC They are also useful for enhancing drug permeation by tumours and for  
CC treating ischemic conditions such as cardiac infarction, chronic coronary  
CC ischemia, chronic lower limb ischemia, stroke and peripheral vascular  
CC disease. In addition they may be used to treat wounds.

XX Sequence 188 AA;

Query Match 100.0%; Score 654; DB 20; Length 188;

Best Local Similarity 100.0%; Pred. No. 1e-64; Matches 116; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

```
OY 1 MNFLLSWVHWSIALLLYLHAKWSQAAPMAEGGQNHHEVVKFMDVYQRSYCHPIETLVD 60
   |||||||
Db 1 mnflswvhwslalllylhakwsqaapmaegsgqnhevkvkfmdivyqrsychpietlvd 60

OY 61 IFOEYPDEIETIFKPSVPLMRCGCGCCNDEGLEECVPTESNITMQIMRIKPHOGH 116
   |||||||
Db 61 lfgeypdeleylfpkpscvplmrcgscndegleecvpteessnltmqimrtpkphgqh 116
```

## RESULT 14

AAR08002  
ID AAR08002 standard; protein; 191 AA.

XX AAR08002;

DT 27-FEB-1991 (first entry)

DE Human vascular endothelial growth factor as deduced from clone

DE lambda.veg.21.

XX VEGF; leukaemia.

OS Homo sapiens.

FH Key Location/Qualifiers  
FT Peptide 1..26  
FT /label= signal peptide  
FT Protein 27..191  
FT /label= hVEGF

XX WO9013649-A.

XX PD 15-NOV-1990.

XX PF 09-MAY-1990; 90WO-US02585.

XX PR 04-AUG-1989; 89US-0389722.

XX PR 12-MAY-1989; 89US-0351117.

XX PR 21-JUN-1989; 89US-0369424.

XX PA (GETH ) GENENTECH INC.

XX PI Ferrara N, Leung DMH;

XX DR WPI; 1990-361484/48.

XX DR N-PSDB; AAQ07006.

PT DNA encoding vascular endothelial cell growth factor - having  
PT selective action for treatment of vascular conditions in absence  
PT of excessive tissue proliferation.

PS Claim 38; Fig 10; 51pp; English.

XX Clone lambda.veg.6 (AAQ06600), representing the full length DNA of  
CC bovine VEGF was used to screen cDNA library prep. from RNA ex-  
CC tracted from human leukaemia cell line HL60 (ATCC CCL240) for cDNA  
CC clones encoding the growth factor. Five positive clones were  
CC identified, one of which was designated lambda.veg.216. This  
CC clone was completely sequenced (AAQ07006). This AA sequence was  
CC deduced from that sequence. The expression vector, p.veg.21, was  
CC used to produce recombinant VEGF for use in the treatment of  
CC conditions in which a selective action on the vascular endothelial  
CC cells in the absence of excessive tissue proliferation is desirable.  
CC See also AAR08001.

XX Sequence 191 AA;

Query Match 100.0%; Score 654; DB 11; Length 191;  
Best Local Similarity 100.0%; Pred. No. 1e-64;

Matches 116; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 1 MNFLSWVHWSLALLYLTHAKWSQAAPMAEGGQNHHEVVKFMDVYQRSYCHPIETLVD 60  
Db 1 mnflswvhwslallylhakwsqaapmaegggqnhhevkvfmdvyqrsychpietlvd 60

OY 61 IFQEYPPDEIEYIFKPSCVPLMRGCGCCNDEGLECVPTESNITMQIMRIKPHOGH 116  
Db 61 ifqeyppdeleyifkpscvplmrccgcndeglecvpteessnitmqimrikphgqgh 116

RESULT 15

AAR91076  
ID AAR91076 standard; Protein; 191 AA.

AC AAR91076;

DT 14-MAY-1996 (first entry)

DE Human vascular endothelial growth factor-165, VEGF-165.

XX  
KW Conjugate; growth factor; FGF; cytotoxin; saporin; eye; regulation;  
KW cell proliferation; psoriasis; pterygia; corneal clouding; cancer;  
KW rheumatoid arthritis; vascular endothelial; fibroblast; epidermal;  
KW heparin binding.

OS Homo sapiens.

XX  
FH Key Location/Qualifiers  
FT Peptide 1..26  
FT /label= sig\_peptide  
FT Protein 27..191  
FT /label= VEGF-165

PN W09524928-A2.

XX 21-SEP-1995.

XX 15-MAR-1995; 95WO-US03448.

XX 15-MAR-1994; 94US-0213447.

PR 15-MAR-1994; 94US-0213446.

XX (PRIZ-) PRIZM PHARM INC.

XX Baird JA, Houston LL, Nova MP, Sosnowski BA;

XX WPI; 1995-336820/43.

DR N-PSDB; AAO99081.

XX  
PT New conjugates of growth factor receptor ligand and targeted agent  
PT - partic. DNA or cytotoxin, used to control cell proliferation in  
PT the eye, e.g. to prevent growth of pterygil and corneal clouding  
XX  
PS Disclosure; Page 185-186; 204pp; English.

XX  
CC AAR91075-R91078 are human vascular endothelial growth factors (VEGFs).  
CC DNA encoding a VEGF can be used to create a fusion protein (FP),  
CC the cDNA of which includes a nucleic acid binding domain (NABD) and  
CC encodes a heparin binding growth factor, HEGF (e.g. VEGF, FGF, HBEGF),  
CC a protein synthesis inhibitor and opt. a linker imparting flexibility  
CC to the FP. The FP can be used to target a protein synthesis inhibitor,  
CC an antisense DNA sequence or an inhibitor of elongation factor 2, to a  
CC cell carrying a HEGF receptor. The conjugates of the invention are  
CC used to inhibit cell proliferation in cells carrying the particular  
CC growth factor receptor. A specific application is to prevent  
CC excessive proliferation of epithelial cells, fibroblasts and  
CC keratinocytes in the anterior eye after surgery, partic. to prevent  
CC recurrence of pterygil after surgical removal, closure of  
CC trabeculectomy after glaucoma surgery and corneal clouding after  
CC excimer laser treatment. Other conditions which may be treated include  
CC tumours, restenosis, psoriasis, Dupuytren's contracture, diabetic  
CC complications, Kaposi's sarcoma and rheumatoid arthritis.

XX  
SQ Sequence 191 AA;

Query Match 100.0%; Score 654; DB 16; Length 191;  
Best Local Similarity 100.0%; Pred. No. 1e-64;  
Matches 116; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 1 MNFLSWVHWSLALLYLTHAKWSQAAPMAEGGQNHHEVVKFMDVYQRSYCHPIETLVD 60  
Db 1 mnflswvhwslallylhakwsqaapmaegggqnhhevkvfmdvyqrsychpietlvd 60

OY 61 IFQEYPPDEIEYIFKPSCVPLMRGCGCCNDEGLECVPTESNITMQIMRIKPHOGH 116  
Db 61 ifqeyppdeleyifkpscvplmrccgcndeglecvpteessnitmqimrikphgqgh 116

Search completed: May 17, 2002, 11:22:32  
Job time: 13549 sec

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OM protein - protein search, using sw model

Run on: May 17, 2002, 07:36:43 ; Search time 60.63 Seconds  
(without alignments)  
46.732 Million cell updates/sec

Title: US-09-575-199-2\_COPY\_1\_116  
Perfect score: 654  
Sequence: 1 MNFLSWVHWSLALLLYLHH.....TEESNTMQIMRIKPHQGH 116

Scoring table: BLOSUM62  
Gapop 10.0 , Gapext 0.5

Searched: 231628 seqs, 24425594 residues

Total number of hits satisfying chosen parameters: 231628

Minimum DB seq length: 0  
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%  
Maximum Match 100%  
Listing first 45 summaries

Database : Issued Patents\_AA:\*

- 1: /cgn2\_6/ptodata/2/1aa/5A\_COMB.pep:\*
- 2: /cgn2\_6/ptodata/2/1aa/5B\_COMB.pep:\*
- 3: /cgn2\_6/ptodata/2/1aa/6A\_COMB.pep:\*
- 4: /cgn2\_6/ptodata/2/1aa/6B\_COMB.pep:\*
- 5: /cgn2\_6/ptodata/2/1aa/PCTUS\_COMB.pep:\*
- 6: /cgn2\_6/ptodata/2/1aa/backfiles1.pep:\*

Pred. NO. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	% Query Match	Length	ID	Description
1	654	100.0	147	3	US-08-807-992B-1 Sequence 1, Appli
2	654	100.0	147	4	US-09-392-932-1 Sequence 1, Appli
3	654	100.0	191	3	US-08-567-200A-2 Sequence 2, Appli
4	654	100.0	191	3	US-08-807-992B-2 Sequence 2, Appli
5	654	100.0	191	3	US-08-691-794-2 Sequence 2, Appli
6	654	100.0	191	4	US-08-795-430-56 Sequence 56, Appli
7	654	100.0	191	4	US-09-392-932-3 Sequence 3, Appli
8	654	100.0	191	6	5332671-4 Patent No. 5332671
9	654	100.0	214	6	5240848-11 Patent No. 5240848
10	654	100.0	215	3	US-08-807-992B-3 Sequence 3, Appli
11	654	100.0	215	4	US-08-586-039B-49 Sequence 49, Appli
12	654	100.0	215	6	5240848-7 Patent No. 5240848
13	654	100.0	232	2	US-08-999-811-7 Sequence 7, Appli
14	654	100.0	232	2	US-08-824-996-9 Sequence 9, Appli
15	654	100.0	232	3	US-08-807-992B-4 Sequence 4, Appli
16	654	100.0	232	3	US-09-042-105-7 Sequence 7, Appli
17	635.5	97.2	231	5	PCT-US96-09001-10 Sequence 10, Appli
18	628	96.0	215	6	5219739-22 Patent No. 5219739
19	587.5	89.8	190	6	5332671-3 Patent No. 5332671
20	568.5	86.9	146	4	US-08-586-039B-33 Sequence 33, Appli
21	568.5	86.9	190	4	US-08-586-039B-31 Sequence 31, Appli
22	568.5	86.9	214	4	US-08-586-039B-35 Sequence 35, Appli
23	560.5	85.7	190	2	US-08-569-063C-20 Sequence 20, Appli
24	554	84.7	189	1	US-08-469-427A-15 Sequence 15, Appli
25	507	77.5	109	3	US-08-691-794-3 Sequence 3, Appli
26	507	77.5	110	4	US-09-392-932-11 Sequence 11, Appli
27	507	77.5	121	6	5194596-19 Patent No. 5194596

28	507	77.5	121	6	5219739-20	Patent No. 5219739
29	507	77.5	145	3	US-08-784-551C-2	Sequence 2, Appli
30	507	77.5	145	4	US-09-392-932-2	Sequence 2, Appli
31	507	77.5	165	6	5194596-18	Patent No. 5194596
32	507	77.5	165	6	5219739-19	Patent No. 5219739
33	440.5	67.4	120	6	5194596-9	Patent No. 5194596
34	440.5	67.4	120	6	5219739-9	Patent No. 5219739
35	440.5	67.4	164	6	5194596-17	Patent No. 5194596
36	440.5	67.4	164	6	5219739-17	Patent No. 5219739
37	440.5	67.4	164	6	5219739-18	Patent No. 5219739
38	266	40.7	149	1	US-08-469-427A-14	Sequence 14, Appli
39	266	40.7	149	2	US-08-039-297B-2	Sequence 2, Appli
40	266	40.7	149	2	US-08-569-063C-21	Sequence 21, Appli
41	266	40.7	149	4	US-08-795-430-55	Sequence 55, Appli
42	266	40.7	149	4	US-08-586-039B-47	Sequence 47, Appli
43	266	40.7	154	4	US-08-586-039B-41	Sequence 41, Appli
44	266	40.7	170	2	US-08-039-297B-8	Sequence 8, Appli
45	266	40.7	170	4	US-08-586-039B-45	Sequence 45, Appli

ALIGNMENTS

RESULT 1  
US-08-807-992B-1  
; Sequence 1, Application US/08807992B  
; Patent No. 6022541  
; GENERAL INFORMATION:  
; APPLICANT: Senger, Donald R  
; APPLICANT: Dvorak, Harold F  
; TITLE OF INVENTION: Immunological preparation for concurrent  
; TITLE OF INVENTION: specific binding to spatially exposed regions of vascular  
; TITLE OF INVENTION: permeability factor bound in-vivo to a tumor associated  
; TITLE OF INVENTION: vessel  
; NUMBER OF SEQUENCES: 31  
; CORRESPONDENCE ADDRESSES:  
; ADDRESSEE: David Prashker, Esq.  
; STREET: P.O. Box 5387  
; CITY: Magnolia  
; STATE: Massachusetts  
; COUNTRY: USA  
; ZIP: 01930  
; COMPUTER READABLE FORM:  
; MEDIUM TYPE: Diskette, 3.50 inch, 1.40 Mb storage  
; COMPUTER: IBM PS/1  
; OPERATING SYSTEM: MS DOS  
; SOFTWARE: WordPerfect version 5.1  
; CURRENT APPLICATION DATA:  
; APPLICATION NUMBER: US/08/807, 992B  
; FILING DATE: March 3, 1997  
; CLASSIFICATION: 424  
; ATTORNEY/AGENT INFORMATION:  
; NAME: David Prashker, Esq.  
; REGISTRATION NUMBER: 29,693  
; REFERENCE/DOCKET NUMBER: BIS-033  
; TELECOMMUNICATION INFORMATION:  
; TELEPHONE: (978) 525-3794  
; INFORMATION FOR SEQ ID NO: 1:  
; SEQUENCE CHARACTERISTICS:  
; LENGTH: 147 amino acids  
; TYPE: amino acid  
; STRANDEDNESS: single  
; TOPOLOGY: linear  
; US-08-807-992B-1

Query Match 100.0%; Score 654; DB 3; Length 147;  
Best Local Similarity 100.0%; Pred. No. 5.6e-68;  
Matches 116; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 1 MNFLSWHWSLALLYLHAKWSQAAPMAEGGQNHHEVVKFMDVYQRSYCHPIETLVD 60  
Db 1 MNFLSWHWSLALLYLHAKWSQAAPMAEGGQNHHEVVKFMDVYQRSYCHPIETLVD 60



OY 61 IFQYPPDEIEYIFKPSVPLMRGCGCCNDEGLECVPTESNITMOMIRIKPHOGQ 116  
|  
Db 61 IFQYPPDEIEYIFKPSVPLMRGCGCCNDEGLECVPTESNITMOMIRIKPHOGQ 116

RESULT 2  
US-09-392-932-1

; Sequence 1, Application US/09392932  
; Patent No. 6352975  
; GENERAL INFORMATION:  
; APPLICANT: Schreiner, George F.  
; APPLICANT: Johnson, Richard J.  
; TITLE OF INVENTION: METHODS OF TREATING HYPERTENSION AND  
; TITLE OF INVENTION: COMPOSITIONS FOR USE THEREIN  
; FILE REFERENCE: SCIOS.002A  
; CURRENT APPLICATION NUMBER: US/09/392,932  
; EARLIER FILING DATE: 1999-09-09  
; EARLIER APPLICATION NUMBER: 60/099,694  
; NUMBER OF SEQ ID NOS: 11  
; SOFTWARE: FastSeq for Windows Version 4.0  
; SEQ ID NO 1  
; LENGTH: 147  
; TYPE: PRT  
; ORGANISM: Homo Sapiens  
US-09-392-932-1

Query Match 100.0%; Score 654; DB 4; Length 147;  
Best Local Similarity 100.0%; Pred. No. 5.6e-68;  
Matches 116; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 1 MNFLSWVHWSLALLYLHAKWSQAAPMAEGGQNHHEVVKFMDVYQRSYCHPIETLVD 60  
|  
Db 1 MNFLSWVHWSLALLYLHAKWSQAAPMAEGGQNHHEVVKFMDVYQRSYCHPIETLVD 60  
OY 61 IFQYPPDEIEYIFKPSVPLMRGCGCCNDEGLECVPTESNITMOMIRIKPHOGQ 116  
|  
Db 61 IFQYPPDEIEYIFKPSVPLMRGCGCCNDEGLECVPTESNITMOMIRIKPHOGQ 116

## RESULT 3

US-08-567-200A-2  
; Sequence 2, Application US/08567200A  
; Patent No. 6020473

; GENERAL INFORMATION:  
; APPLICANT: Keyt, Bruce A.  
; APPLICANT: Nguyen, Francis H.  
; APPLICANT: Ferrara, Napoleone  
; TITLE OF INVENTION: Variants of Vascular Endothelial Cell  
; TITLE OF INVENTION: Growth Factor, Their Uses, and Processes for their  
; NUMBER OF SEQUENCES: 42  
; CORRESPONDENCE ADDRESS:  
; ADDRESSEE: Flehr, Hohbach, Test, Albritton & Herbert  
; STREET: Four Embarcadero Center, Suite 3400  
; CITY: San Francisco  
; STATE: California  
; COUNTRY: United States  
; ZIP: 94111-4187

; COMPUTER READABLE FORM:  
; MEDIUM TYPE: Floppy disk  
; COMPUTER: IBM PC compatible  
; OPERATING SYSTEM: PC-DOS/MS-DOS  
; SOFTWARE: Patentin Release #1.0, Version #1.30  
; CURRENT APPLICATION DATA:  
; APPLICATION NUMBER: US/08/567,200A  
; FILING DATE: 05-DEC-1995  
; CLASSIFICATION: 435

; ATTORNEY/AGENT INFORMATION:  
; NAME: Dreger, Walter H.  
; REGISTRATION NUMBER: 24,190

; REFERENCE/DOCKET NUMBER: A-62326-1/WHD  
; TELECOMMUNICATION INFORMATION:  
; TELEPHONE: (415) 781-1989  
; TELEFAX: (415) 398-3249  
; TELEX: 910 277299

; INFORMATION FOR SEQ ID NO: 2:  
; SEQUENCE CHARACTERISTICS:  
; LENGTH: 191 amino acids  
; TYPE: amino acid  
; TOPOLOGY: linear  
; MOLECULE TYPE: protein  
US-08-567-200A-2

Query Match 100.0%; Score 654; DB 3; Length 191;  
Best Local Similarity 100.0%; Pred. No. 7.7e-68;  
Matches 116; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 1 MNFLSWVHWSLALLYLHAKWSQAAPMAEGGQNHHEVVKFMDVYQRSYCHPIETLVD 60  
|  
Db 1 MNFLSWVHWSLALLYLHAKWSQAAPMAEGGQNHHEVVKFMDVYQRSYCHPIETLVD 60  
OY 61 IFQYPPDEIEYIFKPSVPLMRGCGCCNDEGLECVPTESNITMOMIRIKPHOGQ 116  
|  
Db 61 IFQYPPDEIEYIFKPSVPLMRGCGCCNDEGLECVPTESNITMOMIRIKPHOGQ 116

## RESULT 4

US-08-807-992B-2  
; Sequence 2, Application US/08807992B  
; Patent No. 6022541

; GENERAL INFORMATION:  
; APPLICANT: Senger, Donald R  
; APPLICANT: Dvorak, Harold F  
; TITLE OF INVENTION: Immunological preparation for concurrent  
; TITLE OF INVENTION: specific binding to spatially exposed regions of vascular  
; TITLE OF INVENTION: permeability factor bound in-vivo to a tumor associated bl  
; NUMBER OF SEQUENCES: 31  
; CORRESPONDENCE ADDRESS:  
; ADDRESSEE: David Prashker, Esq.  
; STREET: P.O. Box 5387  
; CITY: Magnolia  
; STATE: Massachusetts  
; COUNTRY: USA  
; ZIP: 01930

; COMPUTER READABLE FORM:  
; MEDIUM TYPE: Diskette, 3.50 inch, 1.40 Mb storage  
; COMPUTER: IBM PS/1  
; OPERATING SYSTEM: MS DOS  
; SOFTWARE: WordPerfect version 5.1  
; CURRENT APPLICATION DATA:  
; APPLICATION NUMBER: US/08/807,992B  
; FILING DATE: March 3, 1997  
; CLASSIFICATION: 424

; ATTORNEY/AGENT INFORMATION:  
; NAME: David Prashker, Esq.  
; REGISTRATION NUMBER: 29,693  
; REFERENCE/DOCKET NUMBER: BIS-033  
; TELECOMMUNICATION INFORMATION:  
; TELEPHONE: (978) 525-3794  
; INFORMATION FOR SEQ ID NO: 2:  
; SEQUENCE CHARACTERISTICS:  
; LENGTH: 191 amino acids  
; TYPE: amino acid  
; STRANDEDNESS: single  
; TOPOLOGY: linear  
US-08-807-992B-2

Query Match 100.0%; Score 654; DB 3; Length 191;  
Best Local Similarity 100.0%; Pred. No. 7.7e-68;  
Matches 116; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 MNFLSWVHMSLALLYLHHAQWSQAAPMAEGGGQNNHHEVVKFMDYQORSYCHPIETLVD 60  
Db 1 MNFLSWVHMSLALLYLHHAQWSQAAPMAEGGGQNNHHEVVKFMDYQORSYCHPIETLVD 60

QY 61 IFQEYPEDEIEYIFKPSCVPLMRGCGCCNDEGLECVPTESNTMQIMRIKPHOGQH 116  
Db 61 IFQEYPEDEIEYIFKPSCVPLMRGCGCCNDEGLECVPTESNTMQIMRIKPHOGQH 116

## RESULT 5

US-08-691-794-2

; Sequence 2, Application US/08691794

; Patent No. 6057428

## ; GENERAL INFORMATION:

; APPLICANT: Keyt, Bruce A.

; APPLICANT: Nguyen, Francis H.

; APPLICANT: Ferrara, Napoleone

; APPLICANT: Cunningham, Brian C.

; APPLICANT: Wells, James A.

; APPLICANT: Li, Bing

; TITLE OF INVENTION: Variants of Vascular Endothelial Cell

; TITLE OF INVENTION: Growth Factor, Their Uses, and Processes for their

; TITLE OF INVENTION: Production

; NUMBER OF SEQUENCES: 45

## ; CORRESPONDENCE ADDRESS:

; ADDRESSEE: Flehr, Hohnbach, Test, Albritton &amp; Herbert

; STREET: Four Embarcadero Center, Suite 3400

; CITY: San Francisco

; STATE: California

; COUNTRY: United States

; ZIP: 94111-4187

## ; COMPUTER READABLE FORM:

; MEDIUM TYPE: Floppy disk

; COMPUTER: IBM PC compatible

; OPERATING SYSTEM: PC-DOS/MS-DOS

; SOFTWARE: Patentin Release #1.0, Version #1.30

## ; CURRENT APPLICATION DATA:

; APPLICATION NUMBER: US/08/691,794

; FILING DATE: 02-AUG-1996

; CLASSIFICATION: 435

## ; PRIOR APPLICATION DATA:

; APPLICATION NUMBER: US 60/002,827

; FILING DATE: 25-AUG-1995

## ; PRIOR APPLICATION DATA:

; APPLICATION NUMBER: US 08/567,200

; FILING DATE: 05-DEC-1995

## ; ATTORNEY/AGENT INFORMATION:

; NAME: Dreger, Walter H.

; REGISTRATION NUMBER: 24,190

; REFERENCE/DOCKET NUMBER: A-63758/WHD

; TELECOMMUNICATION INFORMATION:

; TELEPHONE: (415) 781-1989

; TELEFAX: (415) 398-3249

; TELEX: 910 277299

; INFORMATION FOR SEQ ID NO: 2:

; SEQUENCE CHARACTERISTICS:

; LENGTH: 191 amino acids

; TYPE: amino acid

; TOPOLOGY: linear

; MOLECULE TYPE: protein

; US-08-691-794-2

Query Match 100.0%; Score 654; DB 3; Length 191;

Best Local Similarity 100.0%; Pred. No. 7.7e-68;

Matches 116; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 MNFLSWVHMSLALLYLHHAQWSQAAPMAEGGGQNNHHEVVKFMDYQORSYCHPIETLVD 60  
Db 1 MNFLSWVHMSLALLYLHHAQWSQAAPMAEGGGQNNHHEVVKFMDYQORSYCHPIETLVD 60

QY 61 IFQEYPEDEIEYIFKPSCVPLMRGCGCCNDEGLECVPTESNTMQIMRIKPHOGQH 116  
Db 61 IFQEYPEDEIEYIFKPSCVPLMRGCGCCNDEGLECVPTESNTMQIMRIKPHOGQH 116

Db 61 IFQEYPEDEIEYIFKPSCVPLMRGCGCCNDEGLECVPTESNTMQIMRIKPHOGQH 116

## RESULT 6

US-08-795-430-56

; Sequence 56, Application US/08795430

; Patent No. 6130071

## ; GENERAL INFORMATION:

; APPLICANT: Altalo, Kari

; APPLICANT: Joukov, Vladimir

; TITLE OF INVENTION: Vascular Endothelial Growth Factor C (VEGF-C)

; TITLE OF INVENTION: Protein and Gene, Mutants thereof, and Uses thereof

; NUMBER OF SEQUENCES: 57

## ; CORRESPONDENCE ADDRESS:

; ADDRESSEE: Marshall, O'Toole, Gerstein, Murray &amp; Borun

; STREET: 6300 Sears Tower, 233 South Wacker Drive

; CITY: Chicago

; STATE: Illinois

; COUNTRY: United States of America

; ZIP: 60606-6402

## ; COMPUTER READABLE FORM:

; MEDIUM TYPE: Floppy disk

; COMPUTER: IBM PC compatible

; OPERATING SYSTEM: PC-DOS/MS-DOS

; SOFTWARE: Patentin Release #1.0, Version #1.30

## ; CURRENT APPLICATION DATA:

; APPLICATION NUMBER: US/08/795,430

; FILING DATE:

; CLASSIFICATION: 435

## ; PRIOR APPLICATION DATA:

; APPLICATION NUMBER: PCT/FI96/00427

; FILING DATE: 01-AUG-1996

; PRIOR APPLICATION DATA:

; APPLICATION NUMBER: 08/671,573

; FILING DATE: 28-JUN-1996

; PRIOR APPLICATION DATA:

; APPLICATION NUMBER: 08/601,132

; FILING DATE: 14-FEB-1996

; PRIOR APPLICATION DATA:

; APPLICATION NUMBER: 08/585,895

; FILING DATE: 12-JAN-1996

; PRIOR APPLICATION DATA:

; APPLICATION NUMBER: 08/510,133

; FILING DATE: 01-AUG-1995

; PRIOR APPLICATION DATA:

; APPLICATION NUMBER: 08/340,011

; FILING DATE: 14-NOV-1994

; ATTORNEY/AGENT INFORMATION:

; NAME: Gass, David A.

; REGISTRATION NUMBER: 38,153

; REFERENCE/DOCKET NUMBER: 28967/33691

; TELECOMMUNICATION INFORMATION:

; TELEPHONE: 312/474-6300

; TELEFAX: 312/474-0448

; TELEX: 25-3856

; INFORMATION FOR SEQ ID NO: 56:

; SEQUENCE CHARACTERISTICS:

; LENGTH: 191 amino acids

; TYPE: amino acid

; STRANDEDNESS: not relevant

; TOPOLOGY: linear

; MOLECULE TYPE: protein

; US-08-795-430-56

Query Match 100.0%; Score 654; DB 4; Length 191;

Best Local Similarity 100.0%; Pred. No. 7.7e-68;

Matches 116; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 MNFLSWVHMSLALLYLHHAQWSQAAPMAEGGGQNNHHEVVKFMDYQORSYCHPIETLVD 60  
Db 1 MNFLSWVHMSLALLYLHHAQWSQAAPMAEGGGQNNHHEVVKFMDYQORSYCHPIETLVD 60

QY 61 IFQEYPEDEIEYIFKPSCVPLMRGCGCCNDEGLECVPTESNTMQIMRIKPHOGQH 116  
Db 61 IFQEYPEDEIEYIFKPSCVPLMRGCGCCNDEGLECVPTESNTMQIMRIKPHOGQH 116

QY 61 IFQYEPDEIEYIFKPSVPLMRGCGCCNDEGLECVPTESNITMOIMRIKPHOGH 116  
 Db 61 IFQYEPDEIEYIFKPSVPLMRGCGCCNDEGLECVPTESNITMOIMRIKPHOGH 116

RESULT 7  
 US-09-392-932-3

; Sequence 3, Application US/09392932  
 ; Patent No. 6352975  
 ; GENERAL INFORMATION:  
 ; APPLICANT: Schreiner, George F.  
 ; APPLICANT: Johnson, Richard J.  
 ; TITLE OF INVENTION: METHODS OF TREATING HYPERTENSION AND  
 ; FILE REFERENCE: SCIOS.002A  
 ; CURRENT APPLICATION NUMBER: US/09/392,932  
 ; CURRENT FILING DATE: 1999-09-09  
 ; EARLIER APPLICATION NUMBER: 60/099,694  
 ; EARLIER FILING DATE: 1998-09-09  
 ; NUMBER OF SEQ ID NOS: 11  
 ; SOFTWARE: FastSeq for Windows Version 4.0  
 ; SEQ ID NO 3  
 ; LENGTH: 191  
 ; TYPE: PRT  
 ; ORGANISM: Homo Sapiens  
 ; US-09-392-932-3

Query Match 100.0%; Score 654; DB 4; Length 191;  
 Best Local Similarity 100.0%; Pred. No. 7.7e-68;  
 Matches 116; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 MNFLSWVHWSLALLYLHAKWSQAAPMAEGGQNHHEVVKFMDVYQRSYCHPIETLVD 60  
 Db 1 MNFLSWVHWSLALLYLHAKWSQAAPMAEGGQNHHEVVKFMDVYQRSYCHPIETLVD 60  
 QY 61 IFQYEPDEIEYIFKPSVPLMRGCGCCNDEGLECVPTESNITMOIMRIKPHOGH 116  
 Db 61 IFQYEPDEIEYIFKPSVPLMRGCGCCNDEGLECVPTESNITMOIMRIKPHOGH 116

RESULT 8  
 5332671-4

; Patent No. 5332671  
 ; APPLICANT: FERRARA, NAPOLEONE;LEUNG, DAVID W.H.  
 ; TITLE OF INVENTION: PRODUCTION OF VASCULAR ENDOTHELIAL CELL  
 ; GROWTH FACTOR AND DNA ENCODING SAME  
 ; NUMBER OF SEQUENCES: 15  
 ; CURRENT APPLICATION DATA:  
 ; APPLICATION NUMBER: US/07/389,722  
 ; FILING DATE: 04-AUG-1989  
 ; PRIOR APPLICATION DATA:  
 ; APPLICATION NUMBER: 369,424  
 ; FILING DATE: 21-JUN-1989  
 ; APPLICATION NUMBER: 351,117  
 ; FILING DATE: 12-MAY-1989  
 ; SEQ ID NO:4:  
 ; LENGTH: 191  
 ; 5332671-4

Query Match 100.0%; Score 654; DB 6; Length 191;  
 Best Local Similarity 100.0%; Pred. No. 7.7e-68;  
 Matches 116; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 MNFLSWVHWSLALLYLHAKWSQAAPMAEGGQNHHEVVKFMDVYQRSYCHPIETLVD 60  
 Db 1 MNFLSWVHWSLALLYLHAKWSQAAPMAEGGQNHHEVVKFMDVYQRSYCHPIETLVD 60  
 QY 61 IFQYEPDEIEYIFKPSVPLMRGCGCCNDEGLECVPTESNITMOIMRIKPHOGH 116  
 Db 61 IFQYEPDEIEYIFKPSVPLMRGCGCCNDEGLECVPTESNITMOIMRIKPHOGH 116

RESULT 9  
 5240848-11

; Patent No. 5240848  
 ; APPLICANT: KECK, PAMELA J.;CONNOLLY, DANIEL T.;FEDER,JOSEPH  
 ; TITLE OF INVENTION: DNA SEQUENCES ENCODING HUMAN VASCULAR  
 ; PERMEABILITY FACTOR HAVING 189 AMINO ACIDS  
 ; NUMBER OF SEQUENCES: 11  
 ; CURRENT APPLICATION DATA:  
 ; APPLICATION NUMBER: US/07/337,037  
 ; FILING DATE: 10-JUL-1989  
 ; PRIOR APPLICATION DATA:  
 ; APPLICATION NUMBER: 274,061  
 ; FILING DATE: 21-NOV-1988  
 ; SEQ ID NO:11:  
 ; LENGTH: 214  
 ; 5240848-11

Query Match 100.0%; Score 654; DB 6; Length 214;  
 Best Local Similarity 100.0%; Pred. No. 8.7e-68;  
 Matches 116; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 MNFLSWVHWSLALLYLHAKWSQAAPMAEGGQNHHEVVKFMDVYQRSYCHPIETLVD 60  
 Db 1 MNFLSWVHWSLALLYLHAKWSQAAPMAEGGQNHHEVVKFMDVYQRSYCHPIETLVD 60  
 QY 61 IFQYEPDEIEYIFKPSVPLMRGCGCCNDEGLECVPTESNITMOIMRIKPHOGH 116  
 Db 61 IFQYEPDEIEYIFKPSVPLMRGCGCCNDEGLECVPTESNITMOIMRIKPHOGH 116

RESULT 10

US-08-807-992B-3  
 ; Sequence 3, Application US/08807992B  
 ; Patent No. 6022541

; GENERAL INFORMATION:  
 ; APPLICANT: Senger, Donald R  
 ; APPLICANT: Dvorak, Harold F  
 ; TITLE OF INVENTION: Immunological preparation for concurrent  
 ; TITLE OF INVENTION: specific binding to spatially exposed regions of vascular  
 ; TITLE OF INVENTION: permeability factor bound in-vivo to a tumor associated b1  
 ; NUMBER OF SEQUENCES: 31  
 ; CORRESPONDENCE ADDRESS:  
 ; ADDRESSEE: David Prashker, Esq.  
 ; STREET: P.O. Box 5387  
 ; CITY: Magnolia  
 ; STATE: Massachusetts  
 ; COUNTRY: USA  
 ; ZIP: 01930

COMPUTER READABLE FORM:  
 MEDIUM TYPE: Diskette, 3.50 inch, 1.40 Mb storage  
 COMPUTER: IBM PS/1  
 OPERATING SYSTEM: MS DOS  
 SOFTWARE: Wordperfect version 5.1  
 CURRENT APPLICATION DATA:  
 APPLICATION NUMBER: US/08/807,992B  
 FILING DATE: March 3, 1997  
 CLASSIFICATION: 424  
 ATTORNEY/AGENT INFORMATION:  
 NAME: David Prashker, Esq.  
 REGISTRATION NUMBER: 29,693  
 REFERENCE/DOCKET NUMBER: BIS-033  
 TELECOMMUNICATION INFORMATION:  
 TELEPHONE: (978) 525-3794  
 INFORMATION FOR SEQ ID NO: 3:  
 SEQUENCE CHARACTERISTICS:  
 LENGTH: 215 amino acids  
 TYPE: amino acid  
 STRANDEDNESS: single  
 TOPOLOGY: linear

US-08-807-992B-3

Query Match 100.0%; Score 654; DB 3; Length 215;  
Best Local Similarity 100.0%; Pred. No. 8.8e-68;  
Matches 116; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 MNFLSWVHWSLALLYLHAKWSQAAPMAEGGQNNHHEVVKFMDVYQRSYCHPIETLVD 60  
|||||  
DB 1 MNFLSWVHWSLALLYLHAKWSQAAPMAEGGQNNHHEVVKFMDVYQRSYCHPIETLVD 60

QY 61 IFQEYPDEIEYIFKPSVPLMRGCGCCNDEGLECVPTESNITMQIMRIKPHQGQH 116  
|||||  
DB 61 IFQEYPDEIEYIFKPSVPLMRGCGCCNDEGLECVPTESNITMQIMRIKPHQGQH 116

RESULT 11  
US-08-586-039B-49  
; Sequence 49, Application US/08586039B  
; Patent No. 6140073

## GENERAL INFORMATION:

APPLICANT: Bayne, Marvin L.  
APPLICANT: Thomas Jr., Kenneth A.  
TITLE OF INVENTION: VASCULAR ENDOTHELIAL CELL GROWTH FACTOR C  
TITLE OF INVENTION: SUBUNIT  
NUMBER OF SEQUENCES: 49  
CORRESPONDENCE ADDRESSES:  
ADDRESSEE: Merck & Co., Inc.  
STREET: 126 E. Lincoln Avenue  
CITY: Rahway  
STATE: New Jersey  
COUNTRY: USA  
ZIP: 07065-0900

COMPUTER READABLE FORM:  
MEDIUM TYPE: Floppy disk  
COMPUTER: IBM PC compatible  
OPERATING SYSTEM: PC-DOS/MS-DOS  
SOFTWARE: Microsoft Word 6  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/08/586,039B  
FILING DATE: 16-JAN-1996

## CLASSIFICATION:

PRIOR APPLICATION DATA:  
APPLICATION NUMBER: 08/124,259  
FILING DATE: 20-SEP-1993  
APPLICATION NUMBER: 07/676,436  
FILING DATE: 28-MAR-1991  
ATTORNEY/AGENT INFORMATION:

NAME: Hand, J. Mark  
REGISTRATION NUMBER: 36,545  
REFERENCE/DOCKET NUMBER: 18361DA  
TELECOMMUNICATION INFORMATION:  
TELEPHONE: (908) 594-3905  
TELEFAX: (908) 594-4720  
INFORMATION FOR SEQ ID NO: 49:  
SEQUENCE CHARACTERISTICS:  
LENGTH: 215 amino acids  
TYPE: amino acid  
TOPOLOGY: linear  
MOLECULE TYPE: protein  
US-08-586-039B-49

Query Match 100.0%; Score 654; DB 4; Length 215;  
Best Local Similarity 100.0%; Pred. No. 8.8e-68;  
Matches 116; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 MNFLSWVHWSLALLYLHAKWSQAAPMAEGGQNNHHEVVKFMDVYQRSYCHPIETLVD 60  
|||||  
DB 1 MNFLSWVHWSLALLYLHAKWSQAAPMAEGGQNNHHEVVKFMDVYQRSYCHPIETLVD 60

QY 61 IFQEYPDEIEYIFKPSVPLMRGCGCCNDEGLECVPTESNITMQIMRIKPHQGQH 116  
|||||

DB 61 IFQEYPDEIEYIFKPSVPLMRGCGCCNDEGLECVPTESNITMQIMRIKPHQGQH 116

RESULT 12

5240848-7

; Patent No. 5240848

APPLICANT: KECK, PAMELA J.; CONNOLLY, DANIEL T.; FEDER, JOSEPH  
TITLE OF INVENTION: DNA SEQUENCES ENCODING HUMAN VASCULAR  
PERMEABILITY FACTOR HAVING 189 AMINO ACIDS

NUMBER OF SEQUENCES: 11

CURRENT APPLICATION DATA:

APPLICATION NUMBER: US/07/337,037

FILING DATE: 10-JUL-1989

PRIOR APPLICATION DATA:

APPLICATION NUMBER: 274,061

FILING DATE: 21-NOV-1988

; SEQ ID NO: 7;

; LENGTH: 215

5240848-7

Query Match 100.0%; Score 654; DB 6; Length 215;  
Best Local Similarity 100.0%; Pred. No. 8.8e-68;  
Matches 116; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 MNFLSWVHWSLALLYLHAKWSQAAPMAEGGQNNHHEVVKFMDVYQRSYCHPIETLVD 60  
|||||  
DB 1 MNFLSWVHWSLALLYLHAKWSQAAPMAEGGQNNHHEVVKFMDVYQRSYCHPIETLVD 60

QY 61 IFQEYPDEIEYIFKPSVPLMRGCGCCNDEGLECVPTESNITMQIMRIKPHQGQH 116  
|||||  
DB 61 IFQEYPDEIEYIFKPSVPLMRGCGCCNDEGLECVPTESNITMQIMRIKPHQGQH 116

RESULT 13

US-08-999-811-7

; Sequence 7, Application US/08999811

; Patent No. 5932540

## GENERAL INFORMATION:

APPLICANT: HU, JING-SHAN  
APPLICANT: ROSEN, CRAIG A.

APPLICANT: CAO, LIANG

TITLE OF INVENTION: VASCULAR ENDOTHELIAL GROWTH FACTOR 2

NUMBER OF SEQUENCES: 15

CORRESPONDENCE ADDRESSES:

ADDRESSEE: STERNE, KESSLER, GOLDSTEIN &amp; FOX

STREET: 1100 NEW YORK AVENUE

CITY: WASHINGTON

STATE: DC

COUNTRY: USA

ZIP: 20005

COMPUTER READABLE FORM:

MEDIUM TYPE: Floppy disk

COMPUTER: IBM PC compatible

OPERATING SYSTEM: PC-DOS/MS-DOS

SOFTWARE: PatentIn Release #1.0, Version #1.30

CURRENT APPLICATION DATA:

APPLICATION NUMBER: US/08/999,811

FILING DATE: HERewith

CLASSIFICATION:

PRIOR APPLICATION DATA:

APPLICATION NUMBER: US 08/207,550

FILING DATE: 8-MAR-1994

PRIOR APPLICATION DATA:

APPLICATION NUMBER: US 08/465,968

FILING DATE: 06-JUN-1995

ATTORNEY/AGENT INFORMATION:

NAME: MARKOWICZ, KAREN R.

REGISTRATION NUMBER: 36,351

REFERENCE/DOCKET NUMBER: 1488,1000004

TELECOMMUNICATION INFORMATION:

TELEPHONE: (202)371-2600

TELEFAX: (202)371-2540





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GenCore version 4.5  
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OM protein - protein search, using sw model

Run on: May 17, 2002, 07:36:43 ; Search time 63.72 Seconds

(without alignments)  
174.927 Million cell updates/sec

Title: US-09-575-199-2\_COPY\_1\_116

Perfect score: 654  
Sequence: 1 MNFLSWHWSLALLYLHH.....TEESNITMQIMRIKPHQGQH 116

Scoring table: BLOSUM62  
Gapop 10.0 , Gapext 0.5

Searched: 283138 seqs, 96089334 residues

Total number of hits satisfying chosen parameters: 283138

Minimum DB seq length: 0  
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%

Maximum Match 100%  
Listing first 45 summaries

Database : PIR\_71:\*  
1: pirl:\*  
2: pirl2:\*  
3: pirl3:\*  
4: pirl4:\*

Pred. No. is the number of results predicted by chance to have a  
score greater than or equal to the score of the result being printed,  
and is derived by analysis of the total score distribution.

## SUMMARIES

Result No.	Score	Query Match	length	DB	ID	Description
1	654	100.0	232	2	A41551	vascular endothel
2	600.5	91.8	190	2	S52130	vascular endothel
3	587.5	89.8	190	2	B40080	vascular endothel
4	584.5	89.4	146	2	S57956	ovine vascular end
5	569.5	87.1	190	2	B44881	vascular endothel
6	569.5	87.1	214	2	A44881	vascular endothel
7	568.5	86.9	190	2	A35987	glioma-derived vas
8	440.5	67.4	120	2	A33787	vascular endothel
9	271	41.4	128	2	IS1295	vascular endothel
10	266	40.7	149	2	A41236	vascular growth f
11	255.5	39.1	158	2	A56125	placental growth f
12	197.5	30.2	188	2	JC4680	vascular endothel
13	197.5	30.2	207	2	JC4679	vascular endothel
14	186	28.4	133	2	B49530	vascular endothel
15	157	24.0	419	2	S69207	vascular endothel
16	137.5	21.0	36	2	A60706	vascular endothel
17	135	20.6	148	2	D49530	16K vascular endot
18	94	14.4	226	1	TVWVSS	PDGF-related trans
19	94	14.4	241	1	PFHUG2	platelet-derived g
20	94	14.4	245	1	TVWVSS	platelet-derived g
21	94	14.4	271	2	A25669	PDGF-related trans
22	89	13.6	166	2	JN0248	platelet-derived g
23	89	13.6	196	2	B28964	platelet-derived g
24	89	13.6	196	2	A48851	platelet-derived g
25	89	13.6	197	2	S25096	platelet-derived g
26	89	13.6	198	2	JS0735	platelet-derived g
27	89	13.6	211	1	PFHUG1	platelet-derived g
28	88	13.5	200	2	IS1551	platelet-derived g
29	88	13.5	215	2	S08220	platelet-derived g

30	88	13.5	226	2	IS1550	platelet-derived g
31	87.5	13.4	225	2	S25097	platelet-derived g
32	87.5	13.4	241	1	PFMSG8	platelet-derived g
33	86	13.1	196	2	A37359	platelet-derived g
34	79.5	12.2	1179	2	AG1101	transcription-repa
35	77.5	11.9	1179	2	AG1463	transcription-repa
36	75	11.5	21	2	A56901	nerve growth facto
37	74	11.3	466	2	A23685	interstitial colla
38	73	11.2	782	2	H90823	probable secreted
39	72	11.0	340	2	T41757	ACMNPV orf11 - Bom
40	72	11.0	340	2	C72851	Acorf-11 protein -
41	71.5	10.9	2171	2	E86342	hypothetical prote
42	70	10.7	471	2	A53711	collagenase 3 (EC
43	69.5	10.6	1883	2	T13944	chromodomain-helic
44	68.5	10.5	370	2	JC7592	spinal cord-derive
45	68.5	10.5	859	2	S69700	hypothetical prote

## ALIGNMENTS

RESULT 1  
A41551  
vascular endothelial growth factor 206 precursor - human  
N:Alternate names: vascular permeability factor  
N:Contains: vascular endothelial growth factor 121 (VEGF 121); VEGF 165; VEGF 189;  
C:Species: Homo sapiens (man)  
C>Date: 28-Aug-1992 #sequence\_revision 28-Aug-1992 #text\_change 05-Nov-1999  
C:Accession: A41551; C41551; B41551; A40454; B40454; C40454; A40079; A40080; JQ1463  
R:Houck, K.A.; Ferrara, N.; Winer, J.; Cachianes, G.; Li, B.; Leung, D.W.  
Mol. Endocrinol. 5, 1806-1814, 1991  
A:Title: The vascular endothelial growth factor family: Identification of a fourth  
A:Reference number: A41551; MUID:92168017  
A:Accession: A41551  
A:Molecule type: mRNA  
A:Residues: 1-232 <HOU1>  
A:Cross-references: GB:S85192; NID:g246155; PID:g246156  
A:Accession: C41551  
A:Status: nucleic acid sequence not shown  
A:Molecule type: mRNA  
A:Residues: 1-140, 'N', 183-232 <HOU2>  
A:Accession: B41551  
A:Status: nucleic acid sequence not shown  
A:Molecule type: mRNA  
A:Residues: 1-141, 227-232 <HOU>  
A:Residues: 1-141, 227-232 <HOU>  
R:Ritscher, E.; Mitchell, R.; Hartman, T.; Silva, M.; Gospodarowicz, D.; Fiddes, J.C  
J. Biol. Chem. 266, 11947-11954, 1991  
A:Title: The human gene for vascular endothelial growth factor. Multiple protein fc  
A:Reference number: A40454; MUID:91268072  
A:Accession: A40454  
A:Molecule type: DNA  
A:Residues: 1-165, 183-232 <TI1>  
A:Cross-references: GB:M63971; GB:M63972; GB:M63973; GB:M63974; GB:M63975;  
A:Accession: B40454  
A:Molecule type: DNA  
A:Residues: 1-140, 'N', 183-232 <TI2>  
A:Cross-references: GB:M63971; GB:M63972; GB:M63973; GB:M63974; GB:M63975;  
A:Accession: C40454  
A:Molecule type: DNA  
A:Residues: 1-141, 227-232 <TI3>  
A:Cross-references: GB:M63972; GB:M63973; GB:M63974; GB:M63975; GB:M6397;  
R:Keck, P.J.; Hauser, S.D.; Krivi, G.; Sanzo, K.; Warren, T.; Feder, J.; Connolly,  
Science 246, 1309-1312, 1989  
A:Title: Vascular permeability factor, an endothelial cell mitogen related to PDGF  
A:Reference number: A40079; MUID:90069609  
A:Accession: A40079  
A:Status: not compared with conceptual translation  
A:Molecule type: mRNA  
A:Residues: 1-165, 183-232 <KEC>  
A:Cross-references: GB:M27281; NID:g340300; PIDN:AAA36807.1; PID:g340301  
R:Leung, D.W.; Cachianes, G.; Kuang, W.J.; Goeddel, D.V.; Ferrara, N.  
Science 246, 1306-1309, 1989  
A:Title: Vascular endothelial growth factor is a secreted angiogenic mitogen.

A:Reference number: A40080; MUID:90069608  
A:Accession: A40080  
A:Status: not compared with conceptual translation  
A:Molecule type: mRNA  
A:Residues: 1-140,'N',183-232 <LEU>  
A:Cross-references: GB:M32977; NID:g181970; PIDN:AAA35789.1; PID:g181971  
R:Weinidel, K.; Marne, D.; Welch, H.A.  
Biochem. Biophys. Res. Commun. 183, 1167-1174, 1992  
A:Title: AIDS-associated Kaposi's sarcoma cells in culture express vascular endothelial  
A:Reference number: JQ1463; MUID:92231879  
A:Accession: JQ1463  
A:Molecule type: mRNA  
A:Residues: 1-140,'N',183-232 <MET>  
A:Cross-references: EMBL:X62568; NID:g37658; PIDN:CAA44447.1; PID:g37659  
A:Experimental source: AIDS-Kaposi's sarcoma cell  
A:Accession: JQ1464  
A:Molecule type: mRNA  
A:Residues: 1-140,'N',227-232 <ME2>  
A:Experimental source: AIDS-Kaposi's sarcoma cell  
R:Connolly, D.T.; Olander, J.V.; Heuvelman, D.; Nelson, R.; Monsell, R.; Siegel, N.; Hay  
J. Biol. Chem. 264, 20017-20024, 1989  
A:Title: Human vascular permeability factor. Isolation from U937 cells.  
A:Reference number: A34492; MUID:90062112  
A:Accession: A34492  
A:Molecule type: protein  
A:Residues: 27-36/43-49,'R',72-76,'Q',78-81;59-71 <CON>  
C:Comment: The most common of several alternatively spliced forms is VEGF 165.  
C:Genetics:  
A:Gene: GDB:VEGF  
A:Cross-references: GDB:132244; OMIM:192240  
A:Map position: 6p21-6p12  
C:Function:  
A:Description: promotes fluid and protein leakage from blood vessels  
C:Keywords: alternative splicing; angiogenesis; dimer; disulfide bond; extracellular pro  
F:1-232/Product: vascular endothelial growth factor 206 precursor #status predicted <V20  
F:1-165,183-232/Product: vascular endothelial growth factor 189 precursor #status predic  
F:1-141,227-232/Product: vascular endothelial growth factor 121 precursor #status predic  
F:1-26/Domain: signal sequence #status predicted <SIG>  
F:101/Binding site: carbohydrate (Asn) (covalent) #status predicted

Query Match 100.0%; Score 654; DB 2; Length 232;  
Best Local Similarity 100.0%; Pred. No. 3.4e-61;  
Matches 116; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 1 MNFLSWVHWSLALLYLHAKWSQAAPMAEGGGQNHHEVVKFMDVYQRSYCHPIETLVD 60  
|||||  
Db 1 MNFLSWVHWSLALLYLHAKWSQAAPMAEGGGQNHHEVVKFMDVYQRSYCHPIETLVD 60  
OY 61 IFQEPDEIEIYIFKPSVPLMRGCGCCNDEGLECVPTESNITMQIMRIKPHOGQH 116  
|||||  
Db 61 IFQEPDEIEIYIFKPSVPLMRGCGCCNDEGLECVPTESNITMQIMRIKPHOGQH 116

RESULT 2  
S52130  
vascular endothelial growth factor - pig  
C:Species: Sus scrofa domestica (domestic pig)  
C:Date: 14-Jul-1995 #sequence\_revision 21-Jul-1995 #text\_change 05-Nov-1999  
C:Accession: S52130  
R:Sharma, H.S.; Tang, Z.H.; Gho, B.C.G.; Verdouw, P.D.  
Biochim. Biophys. Acta 1260, 235-238, 1995  
A:Title: Nucleotide sequence and expression of the porcine vascular endothelial growth f  
A:Reference number: S52130; MUID:95143284  
A:Accession: S52130  
A:Status: preliminary  
A:Molecule type: mRNA  
A:Residues: 1-190 <SHA>  
A:Cross-references: GB:X81380; NID:g587559; PIDN:CAA57143.1; PID:g587560  
Query Match 91.8%; Score 600.5; DB 2; Length 190;  
Best Local Similarity 94.8%; Pred. No. 1.2e-55;

Matches 110; Conservative 0; Mismatches 5; Indels 1; Gaps 1;  
OY 1 MNFLSWVHWSLALLYLHAKWSQAAPMAEGGGQNHHEVVKFMDVYQRSYCHPIETLVD 60  
|||||  
Db 1 MNFLSWVHWSLALLYLHAKWSQAAPMAE-GDQKHEVVKFMDVYQRSYCHPIETLVD 59  
OY 61 IFQEPDEIEIYIFKPSVPLMRGCGCCNDEGLECVPTESNITMQIMRIKPHOGQH 116  
|||||  
Db 60 IFQEPDEIEIYIFKPSVPLMRGCGCCNDEGLECVPTESNITMQIMRIKPHOGQH 115

RESULT 3  
B40080  
vascular endothelial growth factor precursor (version 2) - bovine  
C:Species: Bos primigenius taurus (cattle)  
C:Date: 30-Jun-1992 #sequence\_revision 30-Jun-1992 #text\_change 05-Nov-1999  
C:Accession: B40080; B33787; A33255  
R:Leung, D.W.; Cachianes, G.; Kuang, W.J.; Goeddel, D.V.; Ferrara, N.  
Science 246, 1306-1309, 1989  
A:Title: Vascular endothelial growth factor is a secreted angiogenic mitogen.  
A:Reference number: A40080; MUID:90069608  
A:Accession: B40080  
A:Molecule type: mRNA  
A:Residues: 1-190 <LEU>  
A:Cross-references: GB:M32976; NID:g163006; PIDN:AAA30502.1; PID:g163007  
R:Fischer, E.; Gospodarowicz, D.; Mitchell, R.; Silva, M.; Schilling, J.; Lau, K.; C  
Biochem. Biophys. Res. Commun. 165, 1198-1206, 1989  
A:Title: Vascular endothelial growth factor: a new member of the platelet-derived gr  
A:Reference number: A33787; MUID:90121225  
A:Accession: B33787  
A:Molecule type: mRNA  
A:Residues: 27-190 <TIS>  
A:Cross-references: GB:M31836; NID:g163808; PIDN:AAA30804.1; PID:g163809  
R:Ferrara, N.; Henzel, W.J.  
Biochem. Biophys. Res. Commun. 161, 851-858, 1989  
A:Title: Pituitary follicular cells secrete a novel heparin-binding growth factor sp  
A:Reference number: A33255; MUID:89286596  
A:Accession: A33255  
A:Molecule type: protein  
A:Residues: 27-31 <FER>  
C:Keywords: alternative splicing; glycoprotein  
F:1-26/Domain: signal sequence #status predicted <SIG>  
F:27-190/Product: vascular endothelial growth factor #status predicted <MAT>  
F:100/Binding site: carbohydrate (Asn) (covalent) #status predicted

Query Match 89.8%; Score 587.5; DB 2; Length 190;  
Best Local Similarity 92.2%; Pred. No. 2.7e-54;  
Matches 107; Conservative 2; Mismatches 6; Indels 1; Gaps 1;

OY 1 MNFLSWVHWSLALLYLHAKWSQAAPMAEGGGQNHHEVVKFMDVYQRSYCHPIETLVD 60  
|||||  
Db 1 MNFLSWVHWSLALLYLHAKWSQAAPMAE-GGQKHEVVKFMDVYQRSYCHPIETLVD 59  
OY 61 IFQEPDEIEIYIFKPSVPLMRGCGCCNDEGLECVPTESNITMQIMRIKPHOGQH 116  
|||||  
Db 60 IFQEPDEIEIYIFKPSVPLMRGCGCCNDEGLECVPTESNITMQIMRIKPHOGQH 115

RESULT 4  
S57956  
ovine vascular endothelial growth factor - sheep  
C:Species: Ovis orientalis aries, Ovis ammon aries (domestic sheep)  
C:Date: 13-Jan-1996 #sequence\_revision 01-Mar-1996 #text\_change 05-Nov-1999  
C:Accession: S57956  
R:Redmer, D.A.; Dai, Y.; Li, J.; Jones, S.C.; Moor, R.M.  
submitted to the EMBL Data Library, July 1995  
A:Reference number: S57956  
A:Accession: S57956  
A:Status: preliminary  
A:Molecule type: mRNA  
A:Residues: 1-146 <RED>  
A:Cross-references: EMBL:X89506; NID:g899350; PIDN:CAA61677.1; PID:g899351



Query Match 89.4%; Score 584.5; DB 2; Length 146;  
Best Local Similarity 91.4%; Pred. No. 4.3e-54;  
Matches 106; Conservative 3; Mismatches 6; Indels 1; Gaps 1;

OY 1 MNFLSWVHWSLALLYLHAKWSQAAPMAEGGQNHHEVVKFMDVYQRSYCHPIETLVD 60  
|||||  
Db 1 MNFLSWVHWSLALLYLHAKWSQAAPMAE-GGQKPEHVKFMDVYQRSYCHPIETLVD 59

OY 61 IFQEYPDEIEYIFKPSVPLMRGCGCCNDEGLCVPTESNITMQIMRIKPHQGH 116  
|||||  
Db 60 IFQEYPDEIEYIFKPSVPLMRGCGCCNDESLCVPTEEFNITMQIMRIKPHQSOH 115

RESULT 5  
B44881  
vascular endothelial growth factor-1 precursor - mouse  
C:Species: Mus musculus (house mouse)  
C:Date: 03-Feb-1994 #sequence\_revision 03-Feb-1994 #text\_change 05-Nov-1999  
C:Accession: B44881; A43351; A61029  
R:Breier, G.; Albrecht, U.; Sterrer, S.; Risau, W.  
Development 114, 521-532, 1992  
A:Title: Expression of vascular endothelial growth factor during embryonic angiogenesis  
A:Reference number: A44881; MUID:92274860  
A:Accession: B44881  
A:Molecule type: mRNA  
A:Residues: 1-190 <BRE>  
A:Cross-references: GB:S38083; NID:g249858; PIDN:AAB22253.1; PID:g249859  
A:Experimental source: embryo  
A:Note: sequence extracted from NCBI backbone (NCBIN:107622, NCBI:P:107623)  
R:Clafeff, K.P.; Wilkison, W.O.; Spiegelman, B.M.  
J. Biol. Chem. 267, 16317-16322, 1992  
A:Title: Vascular endothelial growth factor. Regulation by cell differentiation and acti  
A:Reference number: A43351; MUID:92355593  
A:Accession: A43351  
A:Molecule type: mRNA  
A:Residues: 1-116, 'ER', 119-190 <CIA>  
A:Cross-references: GB:M95200; NID:g202350; PIDN:AAA40547.1; PID:g202351  
A:Note: sequence extracted from NCBI backbone (NCBIN:110665, NCBI:P:110675)  
R:Rosenthal, R.A.; Megyesi, J.F.; Henzel, W.J.; Ferrara, N.; Folkman, J.  
Growth Factors 4, 53-59, 1990  
A:Title: Conditioned medium from mouse sarcoma 180 cells contains vascular endothelial g  
A:Reference number: A61029; MUID:91197543  
A:Accession: A61029  
A:Molecule type: protein  
A:Residues: 27-38 <ROS>  
C:Keywords: alternative splicing; angiogenesis; dimer; disulfide bond; glycoprotein; mit

Query Match 87.1%; Score 569.5; DB 2; Length 190;  
Best Local Similarity 88.8%; Pred. No. 2.1e-52;  
Matches 103; Conservative 2; Mismatches 10; Indels 1; Gaps 1;

OY 1 MNFLSWVHWSLALLYLHAKWSQAAPMAEGGQNHHEVVKFMDVYQRSYCHPIETLVD 60  
|||||  
Db 1 MNFLSWVHWSLALLYLHAKWSQAAPTE-GEQKSHEVVKFMDVYQRSYCHPIETLVD 59

OY 61 IFQEYPDEIEYIFKPSVPLMRGCGCCNDEGLCVPTESNITMQIMRIKPHQGH 116  
|||||  
Db 60 IFQEYPDEIEYIFKPSVPLMRGCGCCNDEALCVPTESENITMQIMRIKPHQSOH 115

RESULT 6  
A44881  
vascular endothelial growth factor-3 precursor - mouse  
N:Contains: vascular endothelial growth factor-2; vascular permeability factor  
C:Species: Mus musculus (house mouse)  
C:Date: 03-Feb-1994 #sequence\_revision 03-Feb-1994 #text\_change 08-Oct-1999  
C:Accession: A44881; C44881; A60932; S52136  
R:Breier, G.; Albrecht, U.; Sterrer, S.; Risau, W.  
Development 114, 521-532, 1992  
A:Title: Expression of vascular endothelial growth factor during embryonic angiogenesis

A:Reference number: A44881; MUID:92274860  
A:Accession: A44881  
A:Molecule type: mRNA  
A:Residues: 1-214 <BRE>  
A:Cross-references: GB:S37052; NID:g249856; PIDN:AAB22252.1; PID:g249857  
A:Experimental source: embryo  
A:Note: sequence extracted from NCBI backbone (NCBIN:104677, NCBI:P:104678)  
A:Accession: C44881  
A:Molecule type: mRNA  
A:Residues: 1-140, 209-214 <BR2>  
A:Cross-references: GB:S38100; NID:g249860; PIDN:AAB22254.1; PID:g249861  
A:Note: sequence extracted from NCBI backbone (NCBIN:107624, NCBI:P:107625)  
R:Clauss, M.; Gerlach, M.; Gerlach, H.; Brett, J.; Wang, F.; Familletti, P.C.; Pan  
J. Exp. Med. 172, 1535-1545, 1990  
A:Title: Vascular permeability factor: a tumor-derived polypeptide that induces en  
A:Reference number: A60932; MUID:91079755  
A:Accession: A60932  
A:Molecule type: protein  
A:Residues: 27-33 <CLA>  
R:Sugihara, T.; Kaul, S.C.; Mitsui, Y.; Wadhwa, R.  
Biochim. Biophys. Acta 1224, 365-370, 1994  
A:Title: Enhanced expression of multiple forms of VEGF is associated with spontane  
A:Reference number: S52136; MUID:95101726  
A:Accession: S52136  
A:Status: preliminary  
A:Molecule type: protein  
A:Residues: 27-46 <SDG>  
C:Comment: Homodimers could be demonstrated for recombinant VEGF-2 but not VEGF-3.  
C:Keywords: alternative splicing; angiogenesis; disulfide bond; glycoprotein; homoc  
F:1-26/Domain: signal sequence #status predicted <SIG>  
F:27-214/Product: vascular endothelial growth factor-3 #status experimental <MAT>

Query Match 87.1%; Score 569.5; DB 2; Length 214;  
Best Local Similarity 88.8%; Pred. No. 2.4e-52;  
Matches 103; Conservative 2; Mismatches 10; Indels 1; Gaps 1;

OY 1 MNFLSWVHWSLALLYLHAKWSQAAPMAEGGQNHHEVVKFMDVYQRSYCHPIETLVD 60  
|||||  
Db 1 MNFLSWVHWSLALLYLHAKWSQAAPTE-GEQKSHEVVKFMDVYQRSYCHPIETLVD 59

OY 61 IFQEYPDEIEYIFKPSVPLMRGCGCCNDEGLCVPTESNITMQIMRIKPHQGH 116  
|||||  
Db 60 IFQEYPDEIEYIFKPSVPLMRGCGCCNDEALCVPTESENITMQIMRIKPHQSOH 115

RESULT 7  
A35987  
glioma-derived vascular endothelial cell growth factor - rat  
C:Species: Rattus norvegicus (Norway rat)  
C:Date: 16-Nov-1990 #sequence\_revision 16-Nov-1990 #text\_change 05-Nov-1999  
C:Accession: A35987  
R:Conn, G.; Bayne, M.L.; Soderman, D.D.; Kwok, P.W.; Sullivan, K.A.; Palisi, T.M.;  
Proc. Natl. Acad. Sci. U.S.A. 87, 2628-2632, 1990  
A:Title: Amino acid and cDNA sequences of a vascular endothelial cell mitogen that  
A:Reference number: A35987; MUID:90207249  
A:Accession: A35987  
A:Status: preliminary  
A:Molecule type: mRNA  
A:Residues: 1-190 <CON>  
A:Cross-references: GB:M32167; NID:g204287; PIDN:AAA41211.1; PID:g204288

Query Match 86.9%; Score 568.5; DB 2; Length 190;  
Best Local Similarity 88.8%; Pred. No. 2.7e-52;  
Matches 103; Conservative 2; Mismatches 10; Indels 1; Gaps 1;

OY 1 MNFLSWVHWSLALLYLHAKWSQAAPMAEGGQNHHEVVKFMDVYQRSYCHPIETLVD 60  
|||||  
Db 1 MNFLSWVHWSLALLYLHAKWSQAAPTE-GEQKAHEVVKFMDVYQRSYCHPIETLVD 59

OY 61 IFQEYPDEIEYIFKPSVPLMRGCGCCNDEGLCVPTESNITMQIMRIKPHQGH 116  
|||||

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Db      60 IFQEYPDEIEYIFKPSVPLMRCAGCCNDEALECVPTSESNTVMQIMRIKPHQSOH 115
RESULT      8
A33787
vascular endothelial growth factor (version 1) - bovine
C:Species: Bos primigenius taurus (cattle)
C:Date: 16-Mar-1990 #sequence_revision 16-Mar-1990 #text_change 05-Nov-1999
C:Accession: A33787
R:Tischer, E.; Gospodarowicz, D.; Mitchell, R.; Silva, M.; Schilling, J.; Lau, K.; Crisp
Biochem. Biophys. Res. Commun. 165, 1198-1206, 1989
A:Title: Vascular endothelial growth factor: a new member of the platelet-derived growth
A:Reference number: A33787; MUID:90121225
A:Accession: A33787.
A:Status: preliminary
A:Molecule type: mRNA
A:Residues: 1-120 <TIS>
A:Cross-references: GB:M33750; NID:g163810; PIDN:AAA30805.1; PID:g163811
C:Keywords: alternative splicing

Query Match      67.4%; Score 440.5; DB 2; Length 120;
Best Local Similarity 90.0%; Pred. No. 4.7e-39;
Matches 81; Conservative 2; Mismatches 6; Indels 1; Gaps 1;

Oy      27 APMAEGGQNHHEVVKFMDVYQRSYCHPIETLVDIFQEYPDEIEYIFKPSVPLMRCGCG 86
||||| ||| ||||||||| ||||||||| ||||||||| ||||||||| ||||||||| |||||||||
Db      1 APMAE-GGQKPHEVVKFMDVYQRSFCRPIETLVDIFQEYPDEIEYIFKPSVPLMRCGCG 59
||||| ||||||||| ||||||||| ||||||||| ||

Oy      87 CNDEGLECVPTESNITMQIMRIKPHQSOH 116
||||| ||||||||| ||||||||| ||||||||| ||

Db      -60 CNDESLCVPTEEFNITMQIMRIKPHQSOH 89
||||| ||||||||| ||||||||| ||||||||| ||

RESULT      9
I51295
vascular endothelial growth factor - quail (fragment)
C:Species: Phasianidae gen. sp. (quail)
C:Date: 13-Sep-1996 #sequence_revision 13-Sep-1996 #text_change 28-Feb-1997
C:Accession: I51295
R:Flamme, I.; Breier, G.; Risau, W.
Dev. Biol. 169, 699-712, 1995
A:Title: Vascular endothelial growth factor (VEGF) and VEGF receptor 2 (flk-1) are expre
A:Reference number: I51295; MUID:95301109
A:Accession: I51295
A:Status: preliminary; translated from GB/EMBL/DBJ
A:Molecule type: DNA
A:Residues: 1-128 <FLA>
A:Cross-references: GB:S78343; NID:g999147; PID:g999148
C:Genetics:
A:Gene: VEGF

Query Match      41.4%; Score 271; DB 2; Length 128;
Best Local Similarity 78.9%; Pred. No. 3.2e-21;
Matches 45; Conservative 5; Mismatches 7; Indels 0; Gaps 0;

Oy      60 DIFQEYPDEIEYIFKPSVPLMRCGCGCNDEGLECVPTESNITMQIMRIKPHQSOH 116
|||||||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||
Db      1 DIFQEYPDEVEYIFRPSVPLMRCAGCCGDEGLECVPDVYNTMETIARIKPHQSOH 57
||||| ||||||||| ||||||||| ||||||||| ||||||||| ||||||||| ||||||||| ||

RESULT      10
A41236
placental growth factor precursor - human
C:Species: Homo sapiens (man)
C:Date: 19-Jun-1992 #sequence_revision 19-Jun-1992 #text_change 05-Nov-1999
C:Accession: A41236
R:Maglione, D.; Guerriero, V.; Vigiiletto, G.; Delili-Bovi, P.; Persico, M.G.
Proc. Natl. Acad. Sci. U.S.A. 88, 9267-9271, 1991
A:Title: Isolation of a human placenta cDNA coding for a protein related to the vascular
A:Reference number: A41236; MUID:92021031
A:Accession: A41236

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A/Status: preliminary
A/Molecule type: mRNA
A/Residues: 1-149 <MAG>
A/Cross-references: GB:X54936; NID:g35521; PIDN:CAA38698.1; PID:g35522
C/Genetics:
A/Gene: GDB:PGF
A/Cross-references: GDB:134676; OMIM:601121
A/Map position: 14q24-14q31

Query Match          40.7%; Score 266; DB 2; Length 149;
Best Local Similarity 50.6%; Pred. No. 1.2e-20;
Matches 45; Conservative 18; Mismatches 22; Indels 4; Gaps 1;

OY 22 KMSQAPMAEGGQGNHHEVVKFMDVYQRSYCHPIETLVDIFOEYPDEIEYIFKPSCVPLM 81
      : : : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | :
Db 26 QWALSA---GNGSSEVEVVPFOEYVWGRSYCRALERLVDVSEYPSPEVHEHMSPCVSL 81

OY 82 RCGCCNDEGLECVPTESNITMQIMRIK 110
      || || | | | || | : | || : : | :
Db 82 RCTGCCGDENLHCVPETANVTMQILKIR 110

RESULT 11
A56125
placental growth factor precursor - rat
C/Species: Rattus norvegicus (Norway rat)
C/Date: 19-Oct-1995 #sequence_revision 19-Oct-1995 #text_change 05-Nov-1999
C/Accession: A56125
R:Disalvo, J.; Bayne, M.L.; Conn, G.; Kwok, P.W.; Trivedi, P.G.; Soderman, D.D.; Pal
J. Biol. Chem. 270, 7717-7723, 1995
A/Title: Purification and characterization of a naturally occurring vascular endothel
A/Reference number: A56125; MUID:95221439
A/Accession: A56125
A/Status: preliminary; not compared with conceptual translation
A/Molecule type: mRNA
A/Residues: 1-158 <DIS>
A/Cross-references: GB:L40030; NID:g1263413; PIDN:AAA97426.1; PID:g1263414
C/Keywords: glycoprotein

Query Match          39.1%; Score 255.5; DB 2; Length 158;
Best Local Similarity 51.6%; Pred. No. 1.7e-19;
Matches 48; Conservative 15; Mismatches 29; Indels 1; Gaps 1;

OY 24 SOAPMAEGGQGNHHEVVKFMDVYQRSYCHPIETLVDIFOEYPDEIEYIFKPSCVPLMRC 83
      || | : : | | | : : | | | : | | | : | | | : | | | : | | | : | | |
Db 21 SQGA-LSAGNNSTEMEVEVPFNEVWGRSYCRPMKLVYIADEHPNEVSHIFSPCVLLSRC 79

OY 84 GCGCNDDEGLECVPTESNITMQIMRIKPHOGQH 116
      || | || | | | : : || | | : | : |
Db 80 SGCCGDEGLHCVALKTANTITMQILKIPNRDPH 112

RESULT 12
JC4680
vascular endothelial growth factor-related factor 167 precursor - mouse
N/Alternate names: VRF 167 protein
C/Species: Mus musculus (house mouse)
C/Date: 10-May-1996 #sequence_revision 19-Jul-1996 #text_change 05-Nov-1999
C/Accession: JC4680
R:Townson, S.; Lagercrantz, J.; Grimmond, S.; Silins, G.; Nordenskjoeld, M.; Weber,
Biochem. Biophys. Res. Commun. 220, 922-928, 1996
A/Title: Characterization of the murine VEGF-related factor gene.
A/Reference number: JC4679; MUID:96183052
A/Accession: JC4680
A/Molecule type: mRNA
A/Residues: 1-188 <TOW>
A/Cross-references: GB:U43837; NID:g1314335; PIDN:AAC52553.1; PID:g1314336
C/Comment: This factor is a mitogen, that is selective for endothelial cells, and b
ar endothelial growth factors 167 and VEGF 186.
C/Genetics:
A/Gene: vrf

```







GenCore version 4.5  
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OM protein - protein search, using sw model

Run on: May 17, 2002, 11:23:47 ; Search time 63.16 Seconds

(without alignments)

71.113 Million cell updates/sec

Title: US-09-575-199-2\_COPY\_1\_116

Perfect score: 654

Sequence: 1 MNFLSWVWVSLALLYLHH.....TEESNITMOMIRIKPHOGH 116

Scoring table: BLOSUM62

Gapop 10.0 , Gapext 0.5

Searched: 105224 seqs, 38719550 residues

Total number of hits satisfying chosen parameters: 105224

Minimum DB seq length: 0

Maximum DB seq length: 200000000

Post-processing: Minimum Match 0%

Maximum Match 100%

Listing first 45 summaries

Database : SwissProt\_40.\*

Pred. No. is the number of results predicted by chance to have a  
score greater than or equal to the score of the result being printed,  
and is derived by analysis of the total score distribution.

#### SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	654	100.0	232	1	VEGA_HUMAN P15692 homo sapien
2	600.5	91.8	190	1	VEGA_PIG P49151 sus scrofa
3	595.5	91.1	214	1	VEGA_CANFA Q9MYV3 canis famill
4	587.5	89.8	190	1	VEGA_BOVIN P15691 bos taurus
5	584.5	89.4	146	1	VEGA_SHEEP P50412 ovis aries
6	583.5	89.2	190	1	VEGA_HORSE Q9GKR0 equus cabal
7	569.5	87.1	214	1	VEGA_MOUSE Q00731 mus musculu
8	568.5	86.9	214	1	VEGA_RAT P16612 rattus norv
9	562.5	86.0	190	1	VEGA_MESAU Q99PS1 mesocricetu
10	459	70.2	216	1	VEGA_CHICK P52582 gallus gail
11	422.5	64.6	164	1	VEGA_CAVPO P26617 cavia porce
12	274.5	42.0	158	1	PLGF_MOUSE P49764 mus musculu
13	266	40.7	221	1	PLGF_HUMAN P49763 homo sapien
14	263	40.2	149	1	PLGF_BOVIN Q9XS47 bos taurus
15	255.5	39.1	158	1	PLGF_RAT Q63434 rattus norv
16	199.5	30.5	207	1	VEGB_BOVIN Q9XS49 bos taurus
17	197.5	30.2	207	1	VEGB_HUMAN P49765 homo sapien
18	197.5	30.2	207	1	VEGB_MOUSE P49766 mus musculu
19	182	27.8	133	1	VEGB_ORFN2 P52584 orf virus (
20	177	27.1	135	1	VEGB_RAT Q35485 rattus norv
21	161.5	24.7	358	1	VEGD_MOUSE P97946 mus musculu
22	158.5	24.2	354	1	VEGD_HUMAN O43915 homo sapien
23	157	24.0	419	1	VEGC_HUMAN P49767 homo sapien
24	155.5	23.8	326	1	VEGD_RAT O35251 rattus norv
25	149.5	22.9	415	1	VEGC_MOUSE P97953 mus musculu
26	135	20.6	148	1	VEGC_ORFN7 P52585 orf virus (
27	98	15.0	241	1	VEGB_SHEEP Q95229 ovins aries
28	94	14.4	226	1	TSIS_SMSAV P01128 simlan sarc
29	94	14.4	241	1	PDGB_HUMAN P01127 homo sapien
30	94	14.4	245	1	PDGB_FEICA P12919 felis silve
31	89	13.6	28	1	ICPP_VIPLE P82475 vipera lebe
32	89	13.6	204	1	PDGA_RAT P28576 rattus norv
33	89	13.6	211	1	PDGA_HUMAN P04085 homo sapien

34	89	13.6	211	1	PDGA_MOUSE P20033 mus musculu
35	89	13.6	213	1	PDGA_RABIT P34007 oryctolagus
36	88	13.5	226	1	PDGA_XENLA P13698 xenopus lae
37	87.5	13.4	225	1	PDGB_RAT Q05028 rattus norv
38	87.5	13.4	241	1	PDGB_MOUSE P31240 mus musculu
39	87	13.3	126	1	VEGC_RAT O35757 rattus norv
40	74	11.3	354	1	VANA_PSESP O05616 pseudomnas
41	74	11.3	466	1	MM13_RAT P23097 rattus norv
42	72	11.0	340	1	Y011_NPVAC P41421 autographa
43	71.5	10.9	471	1	MM13_RABIT O62806 oryctolagus
44	70	10.7	471	1	MM13_HUMAN P45452 homo sapien
45	68.5	10.5	934	1	CO6_HUMAN P13671 homo sapien

#### ALIGNMENTS

RESULT 1  
VEGA\_HUMAN STANDARD; PRT; 232 AA.  
ID VEGA\_HUMAN  
AC P15692; Q16889; O60720; O75875; Q9UL23; Q9UH58; Q9HIW9; Q9HIW8;  
DT 01-APR-1990 (Rel. 14, Created)  
DT 01-MAR-2002 (Rel. 41, Last sequence update)  
DT 01-MAR-2002 (Rel. 41, Last annotation update)  
DE Vascular endothelial growth factor A precursor (VEGF-A) (Vascular permeability factor) (VPF).  
GN VEGF OR VEGFA.  
OS Homo sapiens (Human).  
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.  
OX NCBI\_TaxID=9606;  
RN [1]  
RP SEQUENCE FROM N.A. (ISOFORM VEGF189 AND VEGF165).  
RX MEDLINE=90069608; PubMed=2479986;  
RA Leung D.W., Cachianes G., Kuan W.-J., Goeddel D.V., Ferrara N.;  
RT "Vascular endothelial growth factor is a secreted angiogenic mitogen."  
RL Science 246:1306-1309(1989).  
RN [2]  
RP SEQUENCE FROM N.A. (ISOFORM VEGF189), AND PARTIAL SEQUENCE.  
RX MEDLINE=90069609; PubMed=2479987;  
RA Keck P.J., Hauser S.D., Krivi G., Sanzo K., Warren T., Feder J., Connolly D.T.;  
RT "Vascular permeability factor, an endothelial cell mitogen related to PDGF."  
RL Science 246:1309-1312(1989).  
RN [3]  
RP SEQUENCE FROM N.A. (ISOFORM VEGF189).  
RX MEDLINE=91268072; PubMed=1711045;  
RA Fischer E., Mitchell R., Hartman T., Silva M., Gospodarowicz D., Fiddes J.C., Abraham J.A.;  
RT "The human gene for vascular endothelial growth factor. Multiple protein forms are encoded through alternative exon splicing."  
RL J. Biol. Chem. 266:11947-11954(1991).  
RN [4]  
RP SEQUENCE FROM N.A. (ISOFORM VEGF206).  
RX MEDLINE=92168017; PubMed=1791831;  
RA Houck K.A., Ferrara N., Winer J., Cachianes G., Li B., Leung D.W.;  
RT "The vascular endothelial growth factor family: identification of a fourth molecular species and characterization of alternative splicing of RNA."  
RL Mol. Endocrinol. 5:1806-1814(1991).  
RN [5]  
RP SEQUENCE FROM N.A. (ISOFORM VEGF165).  
RX MEDLINE=92231879; PubMed=1567395;  
RA Weindel K., Marne D., Welch H.A.;  
RT "AIDS-associated Kaposi's sarcoma cells in culture express vascular endothelial growth factor."  
RL Biochem. Biophys. Res. Commun. 183:1167-1174(1992).  
RN [6]  
RP SEQUENCE FROM N.A. (ISOFORM VEGF145).  
RX MEDLINE=97207275; PubMed=9054410;  
RA Poltorak Z., Cohen T., Sivan R., Kandelis Y., Spira G., Vlodavsky I.,

RA Keshet E., Neufeld G.;  
RT "VEGF15, a secreted vascular endothelial growth factor isoform that  
RL binds to extracellular matrix."; J. Biol. Chem. 272:7151-7158(1997).  
RN [7]  
RP SEQUENCE FROM N.A. (ISOFORM VEGF183).  
RC TISSUE-Kidney;  
RX MEDLINE=99096474; PubMed=9878851;  
RA Lei J., Jiang A., Pei D.;  
RT "Identification and characterization of a new splicing variant of  
RL vascular endothelial growth factor: VEGF183."; Biochim. Biophys. Acta 1443:400-406(1998).  
RN [8]  
RP SEQUENCE FROM N.A. (ISOFORM VEGF165).  
RC TISSUE-Breast;  
RX MEDLINE=98119755; PubMed=9450968;  
RA Claflay K.P., Shih S.-C., Mullen A., Dziennis S., Cusick J.L.,  
RA Abrams K.R., Lee S.W., Detmar M.;  
RT "Identification of a human VPF/VEGF 3' untranslated region mediating  
RL hypoxia-induced mRNA stability."; Mol. Biol. Cell 9:469-481(1998).  
RN [9]  
RP SEQUENCE OF 114-209 FROM N.A. (ISOFORM VEGF183).  
RC TISSUE-Retina;  
RX MEDLINE=99165303; PubMed=10067980;  
RA Jingjing L., Xue Y., Agarwal N., Roque R.S.;  
RT "Human Muller cells express VEGF183, a novel spliced variant of  
RL vascular endothelial growth factor."; Invest. Ophthalmol. Vis. Sci. 40:752-759(1999).  
RN [10]  
RP SEQUENCE FROM N.A. (ISOFORM VEGF165).  
RC TISSUE-Hemangi endothelioma;  
RA Murata H., Fukushima J., Hattori S., Okuda K., Yanagi H.;  
RT "Human cDNA for the vascular endothelial growth factor isoform  
RL VEGF165."; Submitted (DEC-1998) to the EMBL/GenBank/DBJ databases.  
RN [11]  
RP SEQUENCE FROM N.A. (ISOFORM VEGF148).  
RC TISSUE-Renal glomerulus;  
RX MEDLINE=99394945; PubMed=10464055;  
RA Whittle C.J., Gillespie K.M., Harrison R., Mathieson P.W.,  
RA Harper S.J.;  
RT "Heterogeneous vascular endothelial growth factor (VEGF) isoform mRNA  
RL and receptor mRNA expression in human glomeruli, and the  
RN identification of VEGF148 mRNA, a novel truncated splice variant."; Clin. Sci. 97:303-312(1999).  
RN [12]  
RP SEQUENCE FROM N.A. (ISOFORM VEGF121).  
RA Sato J.D., Whitney R.G.;  
RT "Human cDNA for vascular endothelial growth factor isoform VEGF121.";  
RL Submitted (DEC-1999) to the EMBL/GenBank/DBJ databases.  
RN [13]  
RP SEQUENCE FROM N.A.  
RA Williams S.;  
RL Submitted (DEC-2000) to the EMBL/GenBank/DBJ databases.  
RN [14]  
RP PRELIMINARY SEQUENCE OF 27-36; 43-50 AND 59-81.  
RX MEDLINE=90062112; PubMed=2584205;  
RA Connolly D.T., Olander J.V., Heuvelman D., Nelson R., Monsell R.,  
RA Siegel N., Haymore B.L., Leimgruber R., Feder J.;  
RT "Human vascular permeability factor. Isolation from U937 cells."; J. Biol. Chem. 264:20017-20024(1989).  
RN [15]  
RP SEQUENCE OF 27-41.  
RX MEDLINE=93145946; PubMed=7678805;  
RA Fiebach B.L., Jaeger B., Schellermann C., Weindel K., Wiltng J.,  
RA Kochs G., Marne D., Hug H., Welch H.A.;  
RT "Synthesis and assembly of functionally active human vascular  
RL endothelial growth factor homodimers in insect cells."; Eur. J. Biochem. 211:19-26(1993).  
RN [16]  
RP X-RAY CRYSTALLOGRAPHY (2.5 ANGSTROMS) OF 34-135.  
RX MEDLINE=97352774; PubMed=9207067;

RA Muller Y.A., Li B., Christinger H.W., Wells J.A., Cunningham B.C.,  
RA de Vos A.M.;  
RT "Vascular endothelial growth factor: crystal structure and functional  
RL mapping of the kinase domain receptor binding site."; Proc. Natl. Acad. Sci. U.S.A. 94:7192-7197(1997).  
RN [17]  
RP X-RAY CRYSTALLOGRAPHY (1.93 ANGSTROMS) OF 34-135.  
RX MEDLINE=98035455; PubMed=9351807;  
RA Muller Y.A., Christinger H.W., Keyt B.A., de Vos A.M.;  
RT "The crystal structure of vascular endothelial growth factor (VEGF)  
RL refined to 1.93-A resolution: multiple copy flexibility and receptor  
RN binding."; Structure 5:1325-1338(1997).  
RN [18]  
RP X-RAY CRYSTALLOGRAPHY (1.9 ANGSTROMS) OF 39-134.  
RX MEDLINE=99119204; PubMed=9922142;  
RA Wiesmann C., Christinger H.W., Cochran A.G., Cunningham B.C.,  
RA Fairbrother W.J., Keenan C.J., Meng G., de Vos A.M.;  
RT "Crystal structure of the complex between VEGF and a receptor-blocking  
RL peptide."; Biochemistry 37:17765-17772(1998).  
RN [19]  
RP STRUCTURE BY NMR OF 34-135.  
RX MEDLINE=97477915; PubMed=9336848;  
RA Fairbrother W.J., Champe M.A., Christinger H.W., Keyt B.A.,  
RA Starovasnik M.A.;  
RT "1H, 13C, and 15N backbone assignment and secondary structure of the  
RL receptor-binding domain of vascular endothelial growth factor."; Protein Sci. 6:2250-2260(1997).  
RN [20]  
RP STRUCTURE BY NMR OF 137-215.  
RX MEDLINE=98298440; PubMed=9634701;  
RA Fairbrother W.J., Champe M.A., Christinger H.W., Keyt B.A.,  
RA Starovasnik M.A.;  
RT "Solution structure of the heparin-binding domain of vascular  
RL endothelial growth factor."; Structure 6:637-648(1998).  
RN [21]  
RP FUNCTION.  
RX MEDLINE=21320570; PubMed=11427521;  
RA Murphy J.F., Fitzgerald D.J.;  
RT "Vascular endothelial growth factor induces cyclooxygenase-dependent  
RL proliferation of endothelial cells via the VEGF-2 receptor."; FASEB J. 15:1667-1669(2001).  
RN [22]  
RP FUNCTION: Growth factor active in angiogenesis, vasculogenesis and  
RL endothelial cell growth. It induces endothelial cell  
RN proliferation, promotes cell migration, inhibits apoptosis, and  
RL induces permeabilization of blood vessels. It binds to the  
RN VEGFR1/Flt-1 and VEGFR2/Kdr receptors and to heparan sulfate and  
RL heparin. Neuropilin-1 binds isoforms VEGF-165 and VEGF-145.  
RN [23]  
RP SUBUNIT: Homodimer; disulfide-linked. Also found as heterodimer  
RL with PlGF (By similarity).  
RN [24]  
RP SUBCELLULAR LOCATION: VEGF121 is acidic and freely secreted.  
RL VEGF165 is more basic, has heparin-binding properties and,  
RN although a significant proportion remains cell-associated, most is  
RL freely secreted. VEGF189 is very basic; it is cell-associated  
RN after secretion and is bound avidly by heparin and the  
RL extracellular matrix, although it may be released as a soluble  
RN form by heparin, heparinase or plasmin.  
RN [25]  
RP ALTERNATIVE PRODUCTS: 7 isoforms; VEGF206 (shown here), VEGF189,  
RL VEGF183, VEGF165/VEGF, VEGF148, VEGF145 and VEGF121; may be  
RN produced by alternative splicing.  
RL [26]  
RP TISSUE SPECIFICITY: The VEGF189, VEGF-165 and VEGF-121 isoforms  
RL are widely expressed, whereas the VEGF206 and VEGF-145 are  
RN uncommon.  
RL [27]  
RP INDUCTION: Regulated by growth factors, cytokines, gonadotropins,  
RL nitric oxide, hypoxia, hypoglycemia and oncogenic mutations.  
RN [28]  
RP SIMILARITY: BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.  
RL [29]  
RP DATABASE: NAME-R&D Systems' cytokine mini-reviews: VEGF;  
RL WWW="http://www.rndsystems.com/asp/g\_sitebuilder.asp?bodyId=230".  
RN [30]  
RP This SWISS-PROT entry is copyright. It is produced through a collaboration  
RL between the Swiss Institute of Bioinformatics and the EMBL outstation -

Query Match 100.0%; Score 654; DB 1; Length 232;  
Best Local Similarity 100.0%; Pred. No. 1.5e-63;  
Matches 116; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 MNFLSWVHWSLALLLYLHAKWSQAAPMAEGGQGNHVEVKFMDYQRSYCHPIETLVD 60  
1 MNFLSWVHWSLALLLYLHAKWSQAAPMAEGGQGNHVEVKFMDYQRSYCHPIETLVD 60  
DB 61 IFQEYPDIEIYIFKPSVPLMRGCGCCNDEGLECVPTESNITMQIMRIKPHQGQ 116  
61 IFQEYPDIEIYIFKPSVPLMRGCGCCNDEGLECVPTESNITMQIMRIKPHQGQ 116

RESULT 2

VEGA\_PIG STANDARD; PRT: 190 AA.

ID VEGA\_PIG STANDARD; PRT: 190 AA.  
AC P49151; Q9GL52;  
DT 01-FEB-1996 (Rel. 33, Created)  
DT 01-FEB-1996 (Rel. 33, Last sequence update)  
DT 01-MAR-2002 (Rel. 41, Last annotation update)  
DE Vascular endothelial growth factor A precursor (VEGF-A) (Vascular permeability factor) (VPF).  
GN VEGF OR VEGFA.  
OS Sus scrofa (Pig).  
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Cetartiodactyla; Suina; Suidae; Sus.  
OX NCBI\_TaxID=9823;  
RN [1]  
RP SEQUENCE FROM N.A.  
RC TISSUE-Heart;  
RX MEDLINE=95143284; PubMed=7841203;  
RA Sharma H.S., Tang Z.H., Gho B.C.H., Verdouw P.D.;  
RT "Nucleotide sequence and expression of the porcine vascular endothelial growth factor.";  
RL Biochim. Biophys. Acta 1260:235-238(1995).  
RN [2]  
RP SEQUENCE FROM N.A.  
RA Lee T., Canty J.M.;  
RT "PCR cloning of porcine cardiac vascular endothelial growth factor gene.";  
RL Submitted (NOV-2000) to the EMBL/GenBank/DBJ databases.  
CC -1- FUNCTION: Growth factor active in angiogenesis, vasculogenesis and endothelial cell growth. It induces endothelial cell proliferation, promotes cell migration, inhibits apoptosis, and induces permeabilization of blood vessels. It binds to the VEGFR1/Flt-1 and VEGFR2/Kdr receptors and to heparan sulfate and heparin (By similarity).  
CC -1- SUBUNIT: Homodimer; disulfide-linked. Also found as heterodimer with PlGF (By similarity).  
CC -1- SUBCELLULAR LOCATION: Secreted but remains associated to cells or to the extracellular matrix unless released by heparin (By similarity).  
CC -1- SIMILARITY: BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.  
CC -----  
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CC -----  
DR EMBL; X61380; CAA57143.1; -  
DR EMBL; AF318502; AAG33064.1; -  
DR HSSP; P15692; 1VGH.  
DR InterPro; IPR000072; PDGF.  
CC Pfam; PF00341; PDGF; 1.  
DR ProDom; PD001629; PDGF; 1.  
DR SMART; SM00141; PDGF; 1.  
DR PROSITE; PS00249; PDGF\_1; 1.  
DR PROSITE; PS50278; PDGF\_2; 1.  
KW Mitogen; Angiogenesis; Growth factor; Glycoprotein; Signal;

KW Heparin-binding; Multigene family.

FT SIGNAL 1 26 POTENTIAL.  
FT CHAIN 27 190 VASCULAR ENDOTHELIAL GROWTH FACTOR A.  
FT DISULFID 51 93 BY SIMILARITY.  
FT DISULFID 82 127 BY SIMILARITY.  
FT DISULFID 86 129 BY SIMILARITY.  
FT DISULFID 76 76 INTERCHAIN (BY SIMILARITY).  
FT DISULFID 85 85 INTERCHAIN (BY SIMILARITY).  
FT CARBOHYD 100 100 N-LINKED (GLCNAC. . .) (POTENTIAL).  
FT CONFLICT 102 102 T -> A (IN REF. 2).  
SQ SEQUENCE 190 AA; 22368 MW; 04D40B8D7913047F CRC64;

Query Match 91.8%; Score 600.5; DB 1; Length 190;  
Best Local Similarity 94.8%; Pred. No. 7.2e-58;  
Matches 110; Conservative 0; Mismatches 5; Indels 1; Gaps 1;

QY 1 MNFLSWVHWSLALLLYLHAKWSQAAPMAEGGQGNHVEVKFMDYQRSYCHPIETLVD 60  
1 MNFLSWVHWSLALLLYLHAKWSQAAPMAE-GDQKPEVVKFMDYQRSYCHPIETLVD 59  
DB 61 IFQEYPDIEIYIFKPSVPLMRGCGCCNDEGLECVPTESNITMQIMRIKPHQGQ 116  
61 IFQEYPDIEIYIFKPSVPLMRGCGCCNDEGLECVPTESNITMQIMRIKPHQGQ 116  
DB 60 IFQEYPDIEIYIFKPSVPLMRGCGCCNDEGLECVPTESNITMQIMRIKPHQGQ 115

RESULT 3

VEGA\_CANFA STANDARD; PRT: 214 AA.

ID VEGA\_CANFA STANDARD; PRT: 214 AA.  
AC Q9MYV3; Q9XSF5; Q9XSF4; Q9XSF3;  
DT 01-MAR-2002 (Rel. 41, Created)  
DT 01-MAR-2002 (Rel. 41, Last sequence update)  
DT 01-MAR-2002 (Rel. 41, Last annotation update)  
DE Vascular endothelial growth factor A precursor (VEGF-A) (Vascular permeability factor) (VPF).  
GN VEGF OR VEGFA.  
OS Canis familiaris (Dog).  
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Carnivora; Fissipedia; Canidae; Canis.  
OX NCBI\_TaxID=9615;  
RN [1]  
RP SEQUENCE FROM N.A. (ISOFORM VEGF188).  
RX MEDLINE=20125516; PubMed=10661874;  
RA Scheidegger P., Weiglhofer W., Suarez S., Kaser-Hotz B., Steiner R., Ballmer-Hofer K., Jaussel R.;  
RT "Vascular endothelial growth factor (VEGF) and its receptors in tumor-bearing dogs.";  
RL Biol. Chem. 380:1449-1454(1999).  
RN [2]  
RP SEQUENCE FROM N.A. (ISOFORMS VEGF188; VEGF-182 AND VEGF-164).  
RC TISSUE-Heart;  
RA Jingjing L., Roque R.S.;  
RL Submitted (MAR-1999) to the EMBL/GenBank/DBJ databases.  
CC -1- FUNCTION: Growth factor active in angiogenesis, vasculogenesis and endothelial cell growth. It induces endothelial cell proliferation, promotes cell migration, inhibits apoptosis, and induces permeabilization of blood vessels. It binds to the VEGFR1/Flt-1 and VEGFR2/Kdr receptors and to heparan sulfate and heparin (By similarity).  
CC -1- SUBUNIT: Homodimer; disulfide-linked. Also found as heterodimer with PlGF (By similarity).  
CC -1- SUBCELLULAR LOCATION: Secreted but remains associated to cells or to the extracellular matrix unless released by heparin (By similarity).  
CC -----  
CC This SWISS-PROT entry is copyright. At least 3 isoforms; VEGF188 (shown here), VEGF182 and VEGF164; are produced by alternative splicing.  
CC -1- SIMILARITY: BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.  
CC -----  
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CC -----  
DR EMBL: AJ133758; CAB82426.1; -  
DR EMBL: AF133250; AAD29684.1; -  
DR EMBL: AF133249; AAD29683.1; -  
DR EMBL: AF133248; AAD29682.1; -  
DR InterPro: IPR000072; PDGF.  
DR Pfam: PF00341; PDGF; 1.  
DR ProDom: PD001629; PDGF; 1.  
DR SMART: SM00141; PDGF; 1.  
DR PROSITE: PS00249; PDGF\_1; 1.  
DR PROSITE: PS50278; PDGF\_2; 1.  
KW Mitogen; Angiogenesis; Growth factor; Glycoprotein; Signal;  
KW Heparin-binding; Alternative splicing; Multigene family.  
FT SIGNAL 1 26 POTENTIAL.  
FT CHAIN 27 214 VASCULAR ENDOTHELIAL GROWTH FACTOR A.  
FT DISULFID 51 93 BY SIMILARITY.  
FT DISULFID 82 127 BY SIMILARITY.  
FT DISULFID 86 129 BY SIMILARITY.  
FT DISULFID 76 76 INTERCHAIN (BY SIMILARITY).  
FT DISULFID 85 85 INTERCHAIN (BY SIMILARITY).  
FT CARBOHYD 100 100 N-LINKED (GLCNAC. . .) (POTENTIAL).  
FT VARSPLIC 140 140 K-> N (IN ISOFORM VEGF-164).  
FT VARSPLIC 141 164 MISSING (IN ISOFORM VEGF-164).  
FT VARSPLIC 159 164 MISSING (IN ISOFORM VEGF-182).  
FT CONFLICT 143 143 I -> V (IN REF. 2).  
FT CONFLICT 161 161 P -> S (IN REF. 2).  
SQ SEQUENCE 214 AA; 25175 MW; 0AC980A158C44B27 CRC64;

Query Match 91.1%; Score 595.5; DB 1; Length 214;  
Best Local Similarity 94.0%; Pred. No. 2.8e-57;  
Matches 109; Conservative 0; Mismatches 6; Indels 1; Gaps 1;

OY 1 MNFLSWHWSLALLYLHAKWSQAAPMAEGGQNHHEVVKFMDVYQRSYCHPIETLVD 60  
DB 1 MNFLSWHWSLALLYLHAKWSQAAPMA-GGEHKPHHEVVKFMDVYQRSYCHPIETLVD 59  
OY 61 IFQEYDEIEYIFKPSVPLMRGCGCCNDEGLECVPTTEESNITMQIMRIKPHOGH 116  
DB 60 IFQEYDEIEYIFKPSVPLMRGCGCCNDEGLECVPTTEEFNITMQIMRIKPHOGH 115

RESULT 4  
VEGA\_BOVIN STANDARD; PRT; 190 AA.  
ID VEGA\_BOVIN

AC P15691; 01-APR-1990 (Rel. 14, Created)  
DT 01-APR-1990 (Rel. 14, Last sequence update)  
DT 01-MAR-2002 (Rel. 41, Last annotation update)  
DE Vascular endothelial growth factor A precursor (VEGF-A) (Vascular permeability factor) (VPF).  
GN VEGF OR VEGFA.  
OS Bos taurus (Bovine).  
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidae; Bovidae; Bovinae; Bos.  
OC NCBI\_TaxID=9913;

RN [1]  
RP SEQUENCE FROM N.A., AND SEQUENCE OF 27-47.  
RX MEDLINE=90069608; PubMed=2479986;  
RA Leung D.W., Cachianes G., Kuang W.-J., Goeddel D.V., Ferrara N.;  
RT "Vascular endothelial growth factor is a secreted angiogenic mitogen."  
RL Science 246:1306-1309(1989).  
RN [2]

RP SEQUENCE OF 27-190 FROM N.A. (ISOFORMS ALPHA AND BETA).  
RX MEDLINE=90121225; PubMed=2610687;  
RA Tischner E., Gospodarowicz D., Mitchell R., Silva M., Schilling J.,  
RA Lau R., Crisp T., Fiddes J.C., Abraham J.A.;  
RT "Vascular endothelial growth factor: a new member of the platelet-derived growth factor gene family.";

RL Biochem. Biophys. Res. Commun. 165:1198-1206(1989).  
RN [3]

RP SEQUENCE OF 27-31.  
RX MEDLINE=89286596; PubMed=2735925;  
RA Ferrara N., Henzel W.J.;  
RT "Pituitary follicular cells secrete a novel heparin-binding growth factor specific for vascular endothelial cells."  
RL Biochem. Biophys. Res. Commun. 161:851-858(1989).  
CC -!- FUNCTION: Growth factor active in angiogenesis, vasculogenesis and endothelial cell growth. It induces endothelial cell proliferation, promotes cell migration, inhibits apoptosis, and induces permeabilization of blood vessels. It binds to the VEGFR1/Flt-1 and VEGFR2/Kdr receptors and to heparan sulfate and heparin (by similarity).  
CC -!- SUBUNIT: Homodimer; disulfide-linked. Also found as heterodimer with PlGF (by similarity).  
CC -!- SUBCELLULAR LOCATION: Secreted but remains associated to cells or to the extracellular matrix unless released by heparin (by similarity).  
CC -!- ALTERNATIVE PRODUCTS: 2 isoforms; alpha (shown here) and beta; are produced by alternative splicing.  
CC -!- SIMILARITY: BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.  
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CC -----  
DR EMBL: M32976; AAA30502.1; -  
DR EMBL: M31836; AAA30804.1; -  
DR EMBL: M33750; AAA30805.1; -  
DR PIR: A33255; A33255.  
DR PIR: A33787; A33787.  
DR PIR: B40080; B40080.  
DR HSSP: P15692; 1VGH.  
DR InterPro: IPR000072; PDGF.  
DR Pfam: PF00341; PDGF; 1.  
DR ProDom: PD001629; PDGF; 1.  
DR SMART: SM00141; PDGF; 1.  
DR PROSITE: PS00249; PDGF\_1; 1.  
DR PROSITE: PS50278; PDGF\_2; 1.  
KW Mitogen; Angiogenesis; Growth factor; Glycoprotein; Signal;  
KW Heparin-binding; Alternative splicing; Multigene family.  
FT SIGNAL 1 26  
FT CHAIN 27 190 VASCULAR ENDOTHELIAL GROWTH FACTOR A.  
FT DISULFID 51 93 BY SIMILARITY.  
FT DISULFID 82 127 BY SIMILARITY.  
FT DISULFID 86 129 BY SIMILARITY.  
FT DISULFID 76 76 INTERCHAIN (BY SIMILARITY).  
FT DISULFID 85 85 INTERCHAIN (BY SIMILARITY).  
FT CARBOHYD 100 100 N-LINKED (GLCNAC. . .) (POTENTIAL).  
FT VARSPLIC 139 183 MISSING (IN ISOFORM BETA).  
FT VARSPLIC 184 184 R -> K (IN ISOFORM BETA).  
SQ SEQUENCE 190 AA; 22310 MW; EDBF903E46E24789 CRC64;

Query Match 89.8%; Score 587.5; DB 1; Length 190;  
Best Local Similarity 92.2%; Pred. No. 1.8e-56;  
Matches 107; Conservative 2; Mismatches 6; Indels 1; Gaps 1;

OY 1 MNFLSWHWSLALLYLHAKWSQAAPMAEGGQNHHEVVKFMDVYQRSYCHPIETLVD 60  
DB 1 MNFLSWHWSLALLYLHAKWSQAAPMAE-GGQKPHHEVVKFMDVYQRSYCHPIETLVD 59

OY 61 IFQEYDEIEYIFKPSVPLMRGCGCCNDEGLECVPTTEESNITMQIMRIKPHOGH 116  
DB 60 IFQEYDEIEYIFKPSVPLMRGCGCCNDEGLECVPTTEEFNITMQIMRIKPHOGH 115

RESULT 5

VEGA\_SHEEP STANDARD; PRT; 146 AA.  
ID VEGA\_SHEEP  
AC P50412;  
DT 01-OCT-1996 (Rel. 34, Created)  
DT 01-OCT-1996 (Rel. 34, Last sequence update)  
DT 01-MAR-2002 (Rel. 41, Last annotation update)  
DE Vascular endothelial growth factor A precursor (VEGF-A) (Vascular permeability factor) (VPF).  
GN VEGF OR VEGFA.  
OS Ovis aries (Sheep).  
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidae; Bovidae; Caprinae; Ovis.  
OX NCBI\_TaxID=9940;  
RN [1]  
RP SEQUENCE FROM N.A.  
RC TISSUE=Kidney;  
RX MEDLINE=97117958; PubMed=8958842;  
RA Redmer D.A., Dai Y., Li J., Charnock-Jones D.S., Smith S.K., Reynolds L.P., Moor R.M.;  
RT "Characterization and expression of vascular endothelial growth factor (VEGF) in the ovine corpus luteum";  
RL J. Reprod. Fert. 108:157-165(1996).  
CC -!- FUNCTION: Growth factor active in angiogenesis, vasculogenesis and endothelial cell growth. It induces endothelial cell proliferation, promotes cell migration, inhibits apoptosis, and induces permeabilization of blood vessels. It binds to the VEGFR1/Flt-1 and VEGFR2/Kdr receptors and to heparan sulfate and heparin (By similarity).  
CC -!- SUBUNIT: Homodimer; disulfide-linked. Also found as heterodimer with PlGF (By similarity).  
CC -!- SIMILARITY: BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.  
CC -----  
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CC -----  
DR EMBL; X89506; CAA61677.1; -.  
DR HSSP; P15692; IVP.  
DR InterPro; IPR000072; PDGF.  
DR Pfam; PF00341; PDGF; 1.  
DR ProDom; PD001629; PDGF; 1.  
DR SMART; SM00141; PDGF; 1.  
DR PROSITE; PS00249; PDGF\_1; 1.  
DR PROSITE; PS50278; PDGF\_2; 1.  
KW Mitogen; Angiogenesis; Growth factor; Glycoprotein; Signal;  
KW Heparin-binding; Multigene family.  
FT SIGNAL 1 26 BY SIMILARITY.  
FT CHAIN 27 146 VASCULAR ENDOTHELIAL GROWTH FACTOR A.  
FT DISULFID 51 93 BY SIMILARITY.  
FT DISULFID 82 127 BY SIMILARITY.  
FT DISULFID 86 129 BY SIMILARITY.  
FT DISULFID 76 76 INTERCHAIN (BY SIMILARITY).  
FT DISULFID 85 85 INTERCHAIN (BY SIMILARITY).  
FT CARBOHYD 100 100 N-LINKED (GLCNAC... ) (POTENTIAL).  
SQ SEQUENCE 146 AA; 17247 MW; 4E792CB57F91760 CRC64;

Query Match 89.4%; Score 584.5; DB 1; Length 146;  
Best Local Similarity 91.4%; Pred. No. 2.9e-56;  
Matches 106; Conservative 3; Mismatches 6; Indels 1; Gaps 1;

OY 1 MNFLSWHWSLALLYLHAKWSQAAPMAEGGQNHHEVVKFMDYQRSYCHPIETLVD 60  
DB 1 MNFLSWHWSLALLYLHAKWSQAAPMAE-GGQKPEHVKFMDYQRSYCHPIETLVD 59  
OY 61 IFQYDEIEIYIFKPSVPLMRGCGCCNDEGLECVPTESNITMOIMRIKPHOGH 116  
DB 60 IFQYDEIEIYIFKPSVPLMRGCGCCNDEGLECVPTAEFNITMOIMRIKPHOGH 115

RESULT 6  
VEGA\_HORSE STANDARD; PRT; 190 AA.  
ID VEGA\_HORSE  
AC Q9GKR0;  
DT 01-MAR-2002 (Rel. 41, Created)  
DT 01-MAR-2002 (Rel. 41, Last sequence update)  
DT 01-MAR-2002 (Rel. 41, Last annotation update)  
DE Vascular endothelial growth factor A precursor (VEGF-A) (Vascular permeability factor) (VPF).  
GN VEGF OR VEGFA.  
OS Equus caballus (Horse).  
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Perissodactyla; Equidae; Equus.  
OX NCBI\_TaxID=9796;  
RN [1]  
RP SEQUENCE FROM N.A.  
RA Mura N., Misumi K., Kawahara K., Nakashima M., Fukumitsu S., Kawabata H., Uto N., Oka T., Maruyama I., Sakamoto H.;  
RT "Cloning of cDNA and high-level expression of equine vascular endothelial growth factor (VEGF).";  
RL Submitted (JAN-2001) to the EMBL/GenBank/DBJ databases.  
CC -!- FUNCTION: Growth factor active in angiogenesis, and endothelial cell growth. Induces endothelial proliferation and vascular permeability (By similarity).  
CC -!- SUBUNIT: Homodimer; disulfide-linked. Also found as heterodimer with PlGF (By similarity).  
CC -!- SUBCELLULAR LOCATION: Secreted but remains associated to cells or to the extracellular matrix unless released by heparin (By similarity).  
CC -!- SIMILARITY: BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.  
CC -----  
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CC -----  
DR EMBL; AB053350; BAB20890.1; -.  
DR InterPro; IPR000072; PDGF.  
DR Pfam; PF00341; PDGF; 1.  
DR ProDom; PD001629; PDGF; 1.  
DR SMART; SM00141; PDGF; 1.  
DR PROSITE; PS00249; PDGF\_1; 1.  
DR PROSITE; PS50278; PDGF\_2; 1.  
KW Mitogen; Angiogenesis; Growth factor; Glycoprotein; Signal;  
KW Multigene family.  
FT SIGNAL 1 26 POTENTIAL.  
FT CHAIN 27 190 VASCULAR ENDOTHELIAL GROWTH FACTOR A.  
FT DISULFID 51 93 BY SIMILARITY.  
FT DISULFID 82 127 BY SIMILARITY.  
FT DISULFID 86 129 BY SIMILARITY.  
FT DISULFID 76 76 INTERCHAIN (BY SIMILARITY).  
FT DISULFID 85 85 INTERCHAIN (BY SIMILARITY).  
FT CARBOHYD 100 100 N-LINKED (GLCNAC... ) (POTENTIAL).  
SQ SEQUENCE 190 AA; 22312 MW; 87E9E161439E5F87 CRC64;

Query Match 89.2%; Score 583.5; DB 1; Length 190;  
Best Local Similarity 92.2%; Pred. No. 5e-56;  
Matches 107; Conservative 1; Mismatches 7; Indels 1; Gaps 1;

OY 1 MNFLSWHWSLALLYLHAKWSQAAPMAEGGQNHHEVVKFMDYQRSYCHPIETLVD 60  
DB 1 MNFLSWHWSLALLYLHAKWSQAAPMAEGEHT-HEVVKFMDYQRSYCHPIETLVD 59  
OY 61 IFQYDEIEIYIFKPSVPLMRGCGCCNDEGLECVPTESNITMOIMRIKPHOGH 116  
DB 60 IFQYDEIEIYIFKPSVPLMRGCGCCNDEGLECVPTAEFNITMOIMRIKPHOGH 115



RESULT 7  
VEGA\_MOUSE STANDARD; PRT: 214 AA.  
AC Q00731;  
DT 01-APR-1993 (Rel. 25, Created)  
DT 01-OCT-1996 (Rel. 34, Last sequence update)  
DT 01-MAR-2002 (Rel. 41, Last annotation update)  
DE Vascular endothelial growth factor A precursor (VEGF-A) (Vascular permeability factor) (VPF).  
GN VEGF OR VEGFA.  
OS Mus musculus (Mouse).  
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.  
OX NCBI\_TaxID=10090;  
RN [1]  
RP SEQUENCE FROM N.A. (ISOFORMS VEGF-1; VEGF-2 AND VEGF-3).  
RX MEDLINE=92274860; PubMed=1592003;  
RA Breier G., Albrecht U., Sterrer S., Risau W.;  
RT "Expression of vascular endothelial growth factor during embryonic angiogenesis and endothelial cell differentiation.";  
RL Development 114:521-532(1992).  
RN [2]  
RP SEQUENCE FROM N.A. (ISOFORM VEGF-1).  
RX MEDLINE=92355593; PubMed=1644816;  
RA Claffey K.P., Wilkison W.O., Spiegelman B.M.;  
RT "Vascular endothelial growth factor. Regulation by cell differentiation and activated second messenger pathways.";  
RL J. Biol. Chem. 267:16317-16322(1992).  
RN [3]  
RP SEQUENCE OF 1-3 FROM N.A.  
RX MEDLINE=96216498; PubMed=8632007;  
RA Shima D.T., Kuroki M., Deutsch U., Ng Y., Adamis A.P., D'Amore P.A.;  
RT "The mouse gene for vascular endothelial growth factor. Genomic structure, definition of the transcriptional unit, and characterization of transcriptional and post-transcriptional regulatory sequences.";  
RL J. Biol. Chem. 271:3877-3883(1996).  
RN [4]  
RP -1- FUNCTION: Growth factor active in angiogenesis, vasculogenesis and endothelial cell growth. It induces endothelial cell proliferation, promotes cell migration, inhibits apoptosis, and induces permeabilization of blood vessels. It binds to the VEGFR1/Flt-1 and VEGFR2/Kdr receptors and to heparan sulfate and heparin (By similarity).  
CC -1- SUBUNIT: Homodimer; disulfide-linked. Also found as heterodimer with PlGF (By similarity).  
CC -1- SUBCELLULAR LOCATION: VEGF-1 and VEGF-2 are secreted while VEGF-3 remains cell-surface associated unless released by heparin.  
CC -1- ALTERNATIVE PRODUCTS: 3 isoforms; VEGF-3/VEGF188 (shown here), VEGF-1/VEGF164 and VEGF-2/VEGF120; are produced by alternative splicing.  
CC -1- TISSUE SPECIFICITY: In developing embryos, expressed mainly in the choroid plexus, paraventricular neuroepithelium, placenta and kidney glomeruli. Also found in bronchial epithelium, adrenal gland and in seminiferous tubules of testis. High expression of VEGF continues in kidney glomeruli and choroid plexus in adults.  
CC -1- DOMAIN: VEGF-3 contains a basic insert which acts as a cell retention signal.  
CC -1- SIMILARITY: BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.  
CC -----  
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CC -----  
DR EMBL; S37052; AAB22252.1; -  
DR EMBL; S38083; AAB22253.1; -  
DR EMBL; S38100; AAB22254.1; -  
DR EMBL; M95200; AAA40547.1; -  
DR EMBL; U41383; -; NOT\_ANNOTATED\_CDS.

DR PIR; A43351; A43351.  
DR HSSP; P15692; 2VPF.  
DR MGD; MGI:103178; Vegf.  
DR InterPro; IPR000072; PDGF.  
DR Pfam; PF00341; PDGF; 1.  
DR PRODOM; PD001629; PDGF; 1.  
DR SMART; SM00141; PDGF; 1.  
DR PROSITE; PS00249; PDGF\_1; 1.  
DR PROSITE; PS50278; PDGF\_2; 1.  
KW Mitogen; Angiogenesis; Growth factor; Glycoprotein; Signal; Heparin-binding; Alternative splicing; Multigene family.  
FT SIGNAL 1 26  
FT CHAIN 27 214  
FT DISULFID 51 93  
FT DISULFID 82 127  
FT DISULFID 86 129  
FT DISULFID 76 76  
FT CARBOHYD 85 85  
FT CARBOHYD 100 100  
FT VARSPLIC 140 140  
FT VARSPLIC 141 164  
FT VARSPLIC 141 208  
FT CONFLICT 117 118  
SQ SEQUENCE 214 AA; 25283 MW; B5540B51E4BB6E17 CRC64;  
Query Match 87.1%; Score 569.5; DB 1; Length 214;  
Best local similarity 88.8%; Pred. No. 1.8e-54;  
Matches 103; Conservative 2; Mismatches 10; Indels 1; Gaps 1;  
QY 1 MNFLSWVHMSIALLLYLHAKWSQADPMAEGGQNHHEVVKFMDYQORSYCHPIETLVD 60  
Db 1 MNFLSWVHWTALLLLYHAKWSQADPTTE-GEOKSHEVIKFM DYQORSYCRPIETLVD 59  
QY 61 IFQEYPDEIEYIFKPSVPLMRGCGCCNDEGLECVPTESNITMQIMRIKPHOGQ 116  
Db 60 IFQEYPDEIEYIFKPSVPLMRGCGCCNDEALECVPTESNITMQIMRIKPHOSQ 115  
RESULT 8  
VEGA\_RAT STANDARD; PRT: 214 AA.  
AC P16612; Q9QXG7; Q9QXG6; Q9JKX7;  
DT 01-AUG-1990 (Rel. 15, Created)  
DT 01-MAR-2002 (Rel. 41, Last sequence update)  
DT 01-MAR-2002 (Rel. 41, Last annotation update)  
DE Vascular endothelial growth factor A precursor (VEGF-A) (Vascular permeability factor) (VPF).  
GN VEGF OR VEGFA.  
OS Rattus norvegicus (Rat).  
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Rattus.  
OX NCBI\_TaxID=10116;  
RN [1]  
RP SEQUENCE FROM N.A. (ISOFORM VEGF-A164), AND SEQUENCE OF 27-190.  
RX MEDLINE=90207249; PubMed=2320579;  
RA Conn G., Bayne M.L., Soderman D.D., Kwok P.W., Sullivan K.A., Palisi T.M., Hope D.A., Thomas K.A.;  
RT "Amino acid and cDNA sequences of a vascular endothelial cell mitogen that is homologous to platelet-derived growth factor.";  
RL Proc. Natl. Acad. Sci. U.S.A. 87:2628-2633(1990).  
RN [2]  
RP SEQUENCE FROM N.A. (ISOFORMS VEGF-A188; VEGF-A164; VEGF-A144 AND VEGF-A120).  
RX Ishii H., Arakawa T., Okayama M., Oota I., Takuma T., Inomata K.;  
RT "Developmental expression of vascular endothelial growth factor-A (VEGF-A) splicing variants, VEGF-A188, VEGF-A164, and VEGF-A120 in rat masseter muscle.";  
RL Submitted (DEC-1999) to the EMBL/GenBank/DBJ databases.  
RN [3]  
RP SEQUENCE OF 27-40.  
RC TISSUE-Glial tumor;  
RX MEDLINE=95221439; PubMed=7706320;

RA DiSalvo J., Bayne M.L., Conn G., Kwok P.W., Trivedi P.G.,  
 RA Soderman D.D., Palisi T.M., Sullivan K.A., Thomas K.A.;  
 RT "Purification and characterization of a naturally occurring vascular  
 RT endothelial growth factor: placenta growth factor heterodimer.";  
 RL J. Biol. Chem. 270:7717-7723(1995).  
 CC -1- FUNCTION: Growth factor active in angiogenesis, vasculogenesis and  
 CC endothelial cell growth. It induces endothelial cell  
 CC proliferation, promotes cell migration, inhibits apoptosis, and  
 CC induces permeabilization of blood vessels. It binds to the  
 CC VEGFR1/Flt-1 and VEGFR2/Kdr receptors and to heparan sulfate and  
 CC heparin (By similarity).  
 CC -1- SUBUNIT: Homodimer; disulfide-linked. Also found as heterodimer  
 CC with PlGF (By similarity).  
 CC -1- SUBCELLULAR LOCATION: VEGF-A120 is acidic and freely secreted.  
 CC VEGF-A164 is more basic, has heparin-binding properties and,  
 CC although a significant proportion remains cell-associated, most is  
 CC freely secreted. VEGF-A188 is very basic; it is cell-associated  
 CC after secretion and is bound avidly by heparin and the  
 CC extracellular matrix, although it may be released as a soluble  
 CC form by heparin, heparinase or plasmin (By similarity).  
 CC -1- ALTERNATIVE PRODUCTS: At least 4 isoforms; VEGF-A188 (shown here),  
 CC VEGF-A164, VEGF-A144 and VEGF-A120; are produced by alternative  
 CC splicing.  
 CC -1- TISSUE SPECIFICITY: Expressed in the pituitary, in brain, in  
 CC particularly in supraoptic and paraventricular nuclei and the  
 CC choroid plexus. Also found abundantly in the corpus luteum of  
 CC the ovary and in kidney glomeruli.  
 CC -1- SIMILARITY: BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.  
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 CC -----  
 DR EMBL; M32167; AAA41211.1; -  
 DR EMBL; AF215725; AAF19211.1; -  
 DR EMBL; AF215726; AAF19212.1; -  
 DR EMBL; AF222779; AAF25958.1; -  
 DR PIR; A35987; A35987.  
 DR HSSP; P15692; 1VP.  
 DR InterPro; IPR000072; PDGF.  
 DR Pfam; PF00341; PDGF; 1.  
 DR ProDom; PD001629; PDGF; 1.  
 DR SMART; SM00141; PDGF; 1.  
 DR PROSITE; PS00249; PDGF\_1; 1.  
 DR PROSITE; PS50278; PDGF\_2; 1.  
 DR Mitogen; Angiogenesis; Growth factor; Glycoprotein; Signal;  
 KW Heparin-binding; Alternative splicing; Multigene family.  
 FT SIGNAL 1 26  
 FT CHAIN 27 214 VASCULAR ENDOTHELIAL GROWTH FACTOR A.  
 FT DISULFID 51 93 BY SIMILARITY.  
 FT DISULFID 82 127 BY SIMILARITY.  
 FT DISULFID 86 129 BY SIMILARITY.  
 FT DISULFID 76 76 INTERCHAIN (BY SIMILARITY).  
 FT DISULFID 85 85 INTERCHAIN (BY SIMILARITY).  
 FT CARBOHYD 100 100 N-LINKED (GLCNAC. . .).  
 FT VARSPLIC 140 140 K -> N (IN ISOFORM VEGF-A164).  
 FT VARSPLIC 141 164 MISSING (IN ISOFORM VEGF-A164).  
 FT VARSPLIC 141 208 MISSING (IN ISOFORM VEGF-A120).  
 FT VARSPLIC 165 208 MISSING (IN ISOFORM VEGF-A144).  
 FT CONFLICT 101 101 V -> A (IN REF. 2; AAF19212).  
 SQ SEQUENCE 214 AA; 25239 MW; 60FBB876F5304946 CRC64;

Query Match 86.9%; Score 568.5; DB 1; Length 214;  
 Best Local Similarity 88.8%; Pred. No. 2.4e-54;  
 Matches 103; Conservative 2; Mismatches 10; Indels 1; Gaps 1;  
 OY 1 MNFLSNVHWSLALLYLHAKWSQAAPMAEGGONHHEVVKFMDVYQRSYCHPIETLVD 60  
 |||

DB 1 MNFLSNVHWTALLLYLHAKWSQAAPTTE-GEOKAHEVVKFMDVYQRSYCHPIETLVD 59  
 OY 61 IFQEPDEIEYIFKPSVPIKRCGCCNDEGLCEVPTEPSNITMOIMRIKPHOGH 116  
 DB 60 IFQEPDEIEYIFKPSVPIKRCAGCCNDEALECVPTEPSNVTMOIMRIKPHOSQ 115  
 RESULT 9  
 VEGA\_MESAU  
 ID VEGA\_MESAU STANDARD; PRT; 190 AA.  
 AC Q99PS1.  
 DT 01-MAR-2002 (Rel. 41, Created)  
 DT 01-MAR-2002 (Rel. 41, Last sequence update)  
 DE Vascular endothelial growth factor A precursor (VEGF-A) (Vascular  
 DE permeability factor) (VPF).  
 GN VEGF OR VEGFA.  
 OS Mesocricetus auratus (Golden hamster).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
 OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Cricetinae;  
 OC Mesocricetus.  
 OX NCBI\_TaxID=10036;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RC TISSUE=Decidua, and Embryo;  
 RA Yi X.J., Chow P.H.;  
 RL Submitted (MAY-1998) to the EMBL/GenBank/DBJ databases.  
 CC -1- FUNCTION: Growth factor active in angiogenesis, vasculogenesis and  
 CC endothelial cell growth. It induces endothelial cell  
 CC proliferation, promotes cell migration, inhibits apoptosis, and  
 CC induces permeabilization of blood vessels. It binds to the  
 CC VEGFR1/Flt-1 and VEGFR2/Kdr receptors and to heparan sulfate and  
 CC heparin (By similarity).  
 CC -1- SUBUNIT: Homodimer; disulfide-linked. Also found as heterodimer  
 CC with PlGF (By similarity).  
 CC -1- SUBCELLULAR LOCATION: Secreted but remains associated to cells or  
 CC to the extracellular matrix unless released by heparin (By  
 CC similarity).  
 CC -1- SIMILARITY: BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.  
 CC -----  
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 CC -----  
 DR EMBL; AF063013; AAK0049.1; -  
 DR InterPro; IPR000072; PDGF.  
 DR Pfam; PF00341; PDGF; 1.  
 DR ProDom; PD001629; PDGF; 1.  
 DR SMART; SM00141; PDGF; 1.  
 DR PROSITE; PS00249; PDGF\_1; 1.  
 DR PROSITE; PS50278; PDGF\_2; 1.  
 DR Mitogen; Angiogenesis; Growth factor; Glycoprotein; Signal;  
 KW Heparin-binding; Multigene family.  
 FT SIGNAL 1 26  
 FT CHAIN 27 190 VASCULAR ENDOTHELIAL GROWTH FACTOR A.  
 FT DISULFID 51 93 BY SIMILARITY.  
 FT DISULFID 82 127 BY SIMILARITY.  
 FT DISULFID 86 129 BY SIMILARITY.  
 FT DISULFID 76 76 INTERCHAIN (BY SIMILARITY).  
 FT DISULFID 85 85 INTERCHAIN (BY SIMILARITY).  
 FT CARBOHYD 100 100 N-LINKED (GLCNAC. . .) (POTENTIAL).  
 SQ SEQUENCE 190 AA; 22276 MW; F00C5A8EA79A465F CRC64;

Query Match 86.0%; Score 562.5; DB 1; Length 190;  
 Best Local Similarity 87.1%; Pred. No. 9.2e-54;  
 Matches 101; Conservative 5; Mismatches 9; Indels 1; Gaps 1;  
 OY 1 MNFLSNVHWSLALLYLHAKWSQAAPMAEGGONHHEVVKFMDVYQRSYCHPIETLVD 60  
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DB 1 MNFLSWHWTALLLYLHAKWSQAAPTE-GEOKAHGVFEMDVYRRSYCHPIETLYD 59
OY 61 IFQEPDEIEYIFKPSVPLMRGCGCCNDEGLECVPTESNITMOMRIKPHOGH 116
DB 60 IFQEPDEIEYIFKPSVPLMRGCGCCSDEALECVPTESNITMOMRIKPHOGH 115

RESULT 10
VEGA_CHICK STANDARD; PRT; 216 AA.
AC P52582; Q91420;
DT 01-OCT-1996 (Rel. 34, Created)
DT 15-JUL-1998 (Rel. 36, Last sequence update)
DT 01-MAR-2002 (Rel. 41, Last annotation update)
DE Vascular endothelial growth factor A precursor (VEGF-A) (Vascular permeability factor) (VPF).
GN VEGF OR VEGFA.
OS Gallus gallus (Chicken), and
OS Coturnix coturnix japonica (Japanese quail).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Archosauria; Aves; Neognathae; Galliformes; Phasianidae; Phasianinae;
OC Gallus.
OX NCBI_TaxID=9031, 93934;
RN [1]
RP SEQUENCE FROM N.A.
RC SPECIES=Chicken; TISSUE=Heart;
RA Takahashi T.;
RT "Chick embryonic ventricular myocytes VEGF.";
RL Submitted (FEB-1998) to the EMBL/Genbank/DBJ databases.
RN [2]
RP SEQUENCE FROM N.A.
RC SPECIES=C.c.japonica; TISSUE=Embryo;
RX MEDLINE=96005007; PubMed=7556923;
RA Flamme I., von Reutern M., Drexler H.C., Syed-Ali S., Risau W.;
RT "Overexpression of vascular endothelial growth factor in the avian embryo induces hypervascularization and increased vascular permeability without alterations of embryonic pattern formation.";
RL Dev. Biol. 171:399-414(1995).
RN [3]
RP SEQUENCE OF 60-187 FROM N.A.
RC SPECIES=C.c.japonica;
RX MEDLINE=95301109; PubMed=7781909;
RA Flamme I., Breier G., Risau W.;
RT "Vascular endothelial growth factor (VEGF) and VEGF receptor 2 (flk-1) are expressed during vasculogenesis and vascular differentiation in the quail embryo.";
RL Dev. Biol. 169:699-712(1995).
CC -1- FUNCTION: Growth factor active in angiogenesis, vasculogenesis and endothelial cell growth. It induces endothelial cell proliferation, promotes cell migration, inhibits apoptosis, and induces permeabilization of blood vessels. It binds to the VEGFR1/Flt-1 and VEGFR2/Kdr receptors and to heparan sulfate and heparin (By similarity).
CC -1- SUBUNIT: Homodimer; disulfide-linked. Also found as heterodimer with PlGF (By similarity).
CC -1- ALTERNATIVE PRODUCTS: At least 3 isoforms; VEGF190 (shown here), VEGF166 and VEGF146; are produced by alternative splicing.
CC -1- TISSUE SPECIFICITY: Abundantly and equally expressed in heart and liver. In kidney glomeruli, brain and yolk sac, VEGF166 is 5- to 10-times more abundant than VEGF190.
CC -1- DEVELOPMENTAL STAGE: VEGF166 is expressed early at day 1 and is upregulated during gastrulation. Expression of VEGF190 is detectable only from day 2.
CC -1- DOMAIN: VEGF190 contains a basic insert which acts as a cell retention signal.
CC -1- SIMILARITY: BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.
CC -----
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CC -----
DB EMBL; AB011078; BAA24925.1; -.
DR EMBL; S79680; AAB35371.1; -.
DR HSSP; P15692; 1VGH.
DR InterPro; IPR000072; PDGF.
DR Pfam; PF00341; PDGF; 1.
DR ProDom; PD001629; PDGF; 1.
DR SMART; SM00141; PDGF; 1.
DR PROSITE; PS00249; PDGF_1; 1.
DR PROSITE; PS50278; PDGF_2; 1.
KW Mitogen; Angiogenesis; Growth factor; Glycoprotein; Signal;
KW Heparin-binding; Alternative splicing; Multigene family.
FT SIGNAL 1 26
FT CHAIN 27 216
FT DISULFID 52 94
FT DISULFID 83 128
FT DISULFID 87 130
FT DISULFID 77 77
FT DISULFID 86 86
FT CARBOHYD 101 101
FT VARSPLIC 142 142
FT VARSPLIC 143 166
FT VARSPLIC 166 166
FT VARSPLIC 167 210
SQ SEQUENCE 216 AA; 25203 MW; 82E669C2F6FC6DA7 CRC64;

Query Match 70.2%; Score 459; DB 1; Length 216;
Best Local Similarity 68.18; Pred. No. 1.6e-42;
Matches 79; Conservative 16; Mismatches 21; Indels 0; Gaps 0;

OY 1 MNFLSWHWSLALLYLHAKWSQAAPMAEGGQGNHHEVVKFMDVYORSYCHPIETLYD 60
DB 1 MNFLTWIHWGLALLYLQSAELSKAPALGDGERKPNVEIKFLEYERSFCRTIETLYD 60
OY 61 IFQEPDEIEYIFKPSVPLMRGCGCCNDEGLECVPTESNITMOMRIKPHOGH 116
DB 61 IFQEPDEIEYIFKPSVPLMRGCGCCSDEALECVPTESNITMOMRIKPHOGH 116

RESULT 11
VEGA_CAVPO STANDARD; PRT; 164 AA.
AC P26617;
DT 01-AUG-1992 (Rel. 23, Created)
DT 01-AUG-1992 (Rel. 23, Last sequence update)
DT 01-MAR-2002 (Rel. 41, Last annotation update)
DE Vascular endothelial growth factor A (VEGF-A) (Vascular permeability factor) (VPF).
GN VEGF OR VEGFA.
OS Cavia porcellus (Guinea pig).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Rodentia; Hystricognathi; Caviidae; Cavia.
OX NCBI_TaxID=10141;
RN [1]
RP SEQUENCE FROM N.A.
RC TISSUE=Bile duct;
RA Berse B.;
RT Submitted (JAN-1992) to the EMBL/Genbank/DBJ databases.
RL -1- FUNCTION: Growth factor active in angiogenesis, and endothelial cell growth. Induces endothelial proliferation and vascular permeability (By similarity).
CC -1- SUBUNIT: Homodimer; disulfide-linked. Also found as heterodimer with PlGF (By similarity).
CC -1- SUBCELLULAR LOCATION: Secreted but remains associated to cells or to the extracellular matrix unless released by heparin (By similarity).
CC -1- SIMILARITY: BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.
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RT "A heparin-binding form of placenta growth factor (PLGF-2) is  
RT expressed in human umbilical vein endothelial cells and in  
RT Placenta.";  
RL Growth Factors 9:259-268(1993).  
RN (3)  
RP PARTIAL SEQUENCE FROM N.A. (ISOFORM PLGF-2).  
RX MEDLINE-93205407; PubMed-7681160;  
RA Maglione D., Guerriero V., Viglietto G., Ferraro M.G., Aprelikova O.,  
RA Altalio K., del Vecchio S., Lei K.-J., Chou J.Y., Persico M.G.;  
RT "Two alternative mRNAs coding for the angiogenic factor, placenta  
RT growth factor (PLGF), are transcribed from a single gene of  
RT chromosome 14.";  
RL Oncogene 8:925-931(1993).  
RN [4]  
RP SEQUENCE FROM N.A. (ISOFORM PLGF-3).  
RC TISSUE=Placenta;  
RX MEDLINE-97350807; PubMed-9207183;  
RA Cao Y., Ji W.-R., Qi P., Rosin A., Cao Y.;  
RT "Placenta growth factor: identification and characterization of a  
RT novel isoform generated by RNA alternative splicing.";  
RL Biochem. Biophys. Res. Commun. 235:493-498(1997).  
RN [5]  
RP SEQUENCE FROM N.A. (ISOFORM PLGF-1).  
RA Rowen L., Madan A., Qin S., Abbasi N., Dors M., Dickhoff R., James R.,  
RA Loretz C., Lasky S., Madan A., Prescott S., Ratcliffe A., Shaffer T.,  
RA Hood L.;  
RT "Sequencing of human chromosome 14.";  
RL Submitted (MAY-1999) to the EMBL/GenBank/DBJ databases.  
RN [6]  
RP SEQUENCE FROM N.A. (ISOFORM PLGF-2).  
RC TISSUE=Muscle, and Placenta;  
RA Strausberg R.;  
RL Submitted (MAY-2001) to the EMBL/GenBank/DBJ databases.  
RN [7]  
RP CHARACTERIZATION, AND SEQUENCE OF 19-24.  
RX MEDLINE-95014370; PubMed-7929268;  
RA Pak J.E., Chen H.H., Winer J., Houck K.A., Ferrara N.;  
RT "Placenta growth factor. Potentiation of vascular endothelial growth  
RT factor bioactivity, in vitro and in vivo, and high affinity binding  
RT to Flt-1 but not to Flk-1/KDR.";  
RL J. Biol. Chem. 269:25646-25654(1994).  
RN [8]  
RP X-RAY CRYSTALLOGRAPHY (2.0 ANGSTROMS) (ISOFORM PLGF-1).  
RX MEDLINE-21192270; PubMed-11069911;  
RA Iyer S., Leonidas D.D., Swaminathan G.J., Maglione D., Battisti M.,  
RA Tucci M., Persico M.G., Acharya K.R.;  
RT "The crystal structure of human placenta growth factor-1 (PLGF-1), an  
RT angiogenic protein, at 2.0 Å resolution.";  
RL J. Biol. Chem. 276:12153-12161(2001).  
CC -1- FUNCTION: Growth factor active in angiogenesis, and endothelial  
CC cell growth, stimulating their proliferation and migration. It  
CC binds to receptor VEGFR-1/Flt1. PLGF-2 binds neuropilin-1 and 2 in  
CC a heparin-dependent manner.  
CC -1- SUBUNIT: Antiparallel homodimer; disulfide-linked. Also found as  
CC heterodimer with VEGF/VEGF-A. PLGF-3 is found both as homodimer  
CC and as monomer.  
CC -1- SUBCELLULAR LOCATION: The three forms are secreted but PLGF-2  
CC appears to remain cell attached unless released by heparin.  
CC -1- ALTERNATIVE PRODUCTS: 3 isoforms: PLGF-1/PLGF-131, PLGF-2/PLGF-152  
CC and PLGF-3 (shown here); are produced by alternative splicing.  
CC -1- TISSUE SPECIFICITY: While the three forms are present in most  
CC placental tissues, the PLGF-2 is specific to early (8 week)  
CC placenta and only PLGF-1 is found in the colon and mammary  
CC carcinomas.  
CC -1- DOMAIN: PLGF-2 contains a basic insert which acts as a cell  
CC retention signal.  
CC -1- PTM: N-GLYCOSYLATED.  
CC -1- SIMILARITY: BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.  
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CC -----
DR EMBL; X54936; CAA38698.1; -.
DR EMBL; S72960; AAB30462.2; -.
DR EMBL; S57152; AAB25832.2; ALT_SEQ.
DR EMBL; AC006530; AAD30179.1; -.
DR EMBL; BC001422; AAH01422.1; -.
DR EMBL; BC007789; AAH07789.1; -.
DR EMBL; BC007255; AAH07255.1; -.
DR EMBL; A18411; CAA01393.1; -.
DR PDB; 1FZV; 09-MAY-01.
DR MIM; 601121; -.
DR InterPro; IPR000072; PDGF.
DR Pfam; PF00341; PDGF; 1.
DR ProDom; PD001629; PDGF; 1.
DR SMART; SM00141; PDGF; 1.
DR PROSITE; PS00249; PDGF_1; 1.
DR PROSITE; PS50278; PDGF_2; 1.
KW Mitogen; Growth factor; Glycoprotein; Signal; Heparin-binding;
KW Alternative splicing; 3d-structure.
FT SIGNAL 1 18
FT CHAIN 19 221 PLACENTA GROWTH FACTOR.
FT DOMAIN 193 213 HEPARIN-BINDING (PROBABLE).
FT DISULFID 52 94
FT DISULFID 83 128
FT DISULFID 87 130
FT DISULFID 77 77 INTERCHAIN.
FT DISULFID 86 86 INTERCHAIN.
FT CARBOHYD 33 33 N-LINKED (GLCNAC. . .) (POTENTIAL).
FT CARBOHYD 101 101 N-LINKED (GLCNAC. . .) (POTENTIAL).
FT VARSPLIC 132 203 MISSING (IN ISOFORM PLGF-1 AND ISOFORM
FT VARSPLIC 213 213 PLGF-2).
FT VARSPLIC 213 213 R->RRRPKGKKRRREKQPTDCHL (IN ISOFORM
FT FT PLGF-2).
FT FT N-> D (IN REF. 2).
SQ SEQUENCE 221 AA; 24788 MW; D364C6A73C1C6987 CRC64;

Query Match 40.7%; Score 266; DB 1; Length 221;
Best Local Similarity 50.6%; Pred. No. 1.2e-21;
Matches 45; Conservative 18; Mismatches 22; Indels 4; Gaps 1;

QY 22 KMSQAAPMAEGGQGNNHEVVKEMDYQRSYCHIETLVDFQEVPEDEIEYIFKPSCVPLM 81
.: : : | : | : | | | : | | | : | | | : | | | : | | | :
Db 26 QMALSA-----GNSSSEVEVPFOEVMGRSYCRALERLVGVVSEXPSEVEHMFSPSCVSL 81

QY 82 RCGGCCNDEGLECVPTESNITMOIMRIK 110
| | | | | | | | | | | : | : | : | : | : | : | :
Db 82 RCTGCCGDENLHCVPVETANVTMLLKIR 110

RESULT 14
PLGF_BOVIN STANDARD; PRT; 149 AA.
ID PLGF_BOVIN
AC Q9XS47;
DT 01-MAR-2002 (Rel. 41, Created)
DT 01-MAR-2002 (Rel. 41, Last sequence update)
DT 01-MAR-2002 (Rel. 41, Last annotation update)
DE Placenta growth factor precursor (PLGF).
OS PGF OR PLGF.
OS Bos taurus (Bovine).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidae;
OC Bovidae; Bovinae; Bos.
OX NCBI_TaxID=9913;
RN [1]
RP SEQUENCE FROM N.A.
RC TISSUE=Heart;
RA Liu X., Yonekura H., Yamagishi S., Yamamoto Y., Yamamoto H.;
RT "Structure and expression of bovine VEGF family.";
Submitted (MAY-1997) to the EMBL/GenBank/DBJ databases.
```



```
CC -!- FUNCTION: Growth factor active in angiogenesis, and endothelial
CC cell growth, stimulating their proliferation and migration. It
CC binds to receptor VEGFR-1/FLT1 (By similarity).
CC -!- SUBUNIT: Antiparallel homodimer; disulfide-linked. Also found as
CC heterodimer with VEGF/VEGF-A (By similarity).
CC -!- SUBCELLULAR LOCATION: Secreted (By similarity).
CC -!- SIMILARITY: BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.
CC -----
CC This SWISS-PROT entry is copyright. It is produced through a collaboration
CC between the Swiss Institute of Bioinformatics and the EMBL outstation -
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CC or send an email to license@isb-sib.ch).
CC -----
DR EMBL; AB004272; BAA77684.1; -.
DR HSSP; P15692; 1VP.
DR InterPro; IPR000072; PDGF.
DR Pfam; PF00341; PDGF; 1.
DR ProDom; PD001629; PDGF; 1.
DR SMART; SM00141; PDGF; 1.
DR PROSITE; PS00249; PDGF_1; 1.
DR PROSITE; PS50278; PDGF_2; 1.
KW Mitogen; Growth factor; Glycoprotein; Signal.
FT SIGNAL 1 18
FT CHAIN 1 18 PLACENTA GROWTH FACTOR.
FT DISULFID 19 149 INTRACHAIN (BY SIMILARITY).
FT DISULFID 52 94 INTRACHAIN (BY SIMILARITY).
FT DISULFID 83 128 INTRACHAIN (BY SIMILARITY).
FT DISULFID 87 130 INTRACHAIN (BY SIMILARITY).
FT DISULFID 77 77 INTERCHAIN (BY SIMILARITY).
FT DISULFID 86 86 INTERCHAIN (BY SIMILARITY).
FT CARBOHYD 33 33 N-LINKED (GLCNAC. . .) (POTENTIAL).
FT CARBOHYD 101 101 N-LINKED (GLCNAC. . .) (POTENTIAL).
SQ SEQUENCE 149 AA; 17094 MW; 1F8EE3BBC745EEF0 CRC64;
```

Query Match 40.28; Score 263; DB 1; Length 149;  
Best Local Similarity 50.6%; Pred. No. 1.7e-21;  
Matches 45; Conservative 17; Mismatches 23; Indels 4; Gaps 1;

```
OY 22 KWSQAPMAEGGQNHHEVVKEMDYQSYCHPIETLVDFQETPDEIEYIFKPSCVPLM 81
   :| :| :| :| :| :| :| :| :| :| :| :| :| :| :| :| :| :| :| :| :| :|
Db 26 QWA-----LSPGNISSEVEVPFQQVWSRSCRPVERLVIVSEYPSMEHLFSPSCVSLM 81
   || ||| :| :| :| :| :| :| :| :| :| :| :| :| :| :| :| :| :| :| :| :|
OY 82 RCGGCNDEGLECVPTESNITMQIMRIK 110
   || ||| :| :| :| :| :| :| :| :| :| :| :| :| :| :| :| :| :| :| :| :|
Db 82 RCTGCCDSMHCVPLETANTMQLMKYR 110
```

RESULT 15  
PGLF\_RAT STANDARD; PRT; 158 AA.  
AC Q63434;  
DT 01-MAR-2002 (Rel. 41, Created)  
DT 01-MAR-2002 (Rel. 41, Last sequence update)  
DT 01-MAR-2002 (Rel. 41, Last annotation update)  
DE Placenta growth factor precursor (P1GF).  
GN P1GF.  
OS Rattus norvegicus (Rat).  
OC Eukaryota; Metazoa; Chordata; Vertebrata; Euteleostomi;  
OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Rattus.  
OX NCBI\_TaxID-10116;  
RN [1]  
RP SEQUENCE FROM N.A., AND PARTIAL SEQUENCE.  
RX MEDLINE-95221439; PubMed-7706320;  
RA DiSalvo J., Bayne M.L., Conn G., Kwok P.W., Trivedi P.G.,  
RA Soderman D.D., Palisi T.M., Sullivan K.A., Thomas K.A.;  
RT "Purification and characterization of a naturally occurring vascular  
endothelial growth factor, placenta growth factor heterodimer.";  
RL J. Biol. Chem. 270:7717-7723(1995).  
CC -!- FUNCTION: Growth factor active in angiogenesis, and endothelial  
CC cell growth, stimulating their proliferation and migration. It

```
CC binds to receptor VEGFR-1/FLT1 (By similarity).
CC -!- SUBUNIT: Antiparallel homodimer; disulfide-linked. Also found as
CC heterodimer with VEGF/VEGF-A.
CC -!- SUBCELLULAR LOCATION: Secreted (By similarity).
CC -!- SIMILARITY: BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.
CC -----
CC This SWISS-PROT entry is copyright. It is produced through a collaboration
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CC or send an email to license@isb-sib.ch).
CC -----
DR EMBL; L40030; AAA97426.1; -.
DR HSSP; P15692; 1VP.
DR InterPro; IPR000072; PDGF.
DR Pfam; PF00341; PDGF; 1.
DR ProDom; PD001629; PDGF; 1.
DR SMART; SM00141; PDGF; 1.
DR PROSITE; PS00249; PDGF_1; 1.
DR PROSITE; PS50278; PDGF_2; 1.
KW Mitogen; Growth factor; Glycoprotein; Signal.
FT SIGNAL 1 23
FT CHAIN 1 23 PLACENTA GROWTH FACTOR.
FT DISULFID 24 158 INTRACHAIN (BY SIMILARITY).
FT DISULFID 48 90 INTRACHAIN (BY SIMILARITY).
FT DISULFID 79 125 INTRACHAIN (BY SIMILARITY).
FT DISULFID 83 127 INTRACHAIN (BY SIMILARITY).
FT DISULFID 73 73 INTERCHAIN (BY SIMILARITY).
FT DISULFID 82 82 INTERCHAIN (BY SIMILARITY).
FT CARBOHYD 29 29 N-LINKED (GLCNAC. . .) (POTENTIAL).
FT CARBOHYD 30 30 N-LINKED (GLCNAC. . .) (POTENTIAL).
FT CARBOHYD 97 97 N-LINKED (GLCNAC. . .) (POTENTIAL).
SQ SEQUENCE 158 AA; 17681 MW; B4771373A82E15B9 CRC64;
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Query Match 39.18; Score 255.5; DB 1; Length 158;  
Best Local Similarity 51.6%; Pred. No. 1.1e-20;  
Matches 48; Conservative 15; Mismatches 29; Indels 1; Gaps 1;

```
OY 24 SQAPMAEGGQNHHEVVKEMDYQSYCHPIETLVDFQETPDEIEYIFKPSCVPLMRC 83
   || :| :| :| :| :| :| :| :| :| :| :| :| :| :| :| :| :| :| :| :| :|
Db 21 SOGA-LSAGNSTEMEVPFNEVWGRSCRPMEKLVYIADEHPNEVSHIFSPSCVLLSRC 79
   ||| ||| :| :| :| :| :| :| :| :| :| :| :| :| :| :| :| :| :| :| :| :|
OY 84 GGCCNDEGLECVPTESNITMQIMRIKPHQGH 116
   ||| ||| :| :| :| :| :| :| :| :| :| :| :| :| :| :| :| :| :| :| :| :|
Db 80 SGCCGDEGLHCYALKTANTMQLKIPNNDPH 112
```

Search completed: May 17, 2002, 15:26:54  
Job time: 14587 sec

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GenCore version 4.5  
Copyright (c) 1993 - 2000 CompuGen Ltd.

OM protein - protein search, using sw model

Run on: May 17, 2002, 11:22:33 ; Search time 121.84 Seconds  
(without alignments)  
164.703 Million cell updates/sec

```

Title:      US-09-575-199-2_COPY_1_116
Perfect score: 654
Sequence:   1 MNFLSVVHMSLALLLYLHH.....TEESNITMQIMRIKPHGGH 116

```

Scoring table: BLOSUM62  
Gapop 10.0 , Gapext 0.5

Searched: 562222 seqs, 172994929 residues

Total number of hits satisfying chosen parameters: 562222

```
Minimum DB seq length: 0
Maximum DB seq length: 2000000000
```

Post-processing:	Minimum Match 0%
	Maximum Match 100%
	Listing first 45 summaries

```
Database :

SPREMBL_19:*
1: sp_archaea:*
2: sp_bacteria:*
3: sp_fungi:*
4: sp_human:*
5: sp_invertebrate:*
6: sp_mammal:*
7: sp_mhc:*
8: sp_organelle:*
9: sp_phage:*
10: sp_plant:*
11: sp_rodent:*
12: sp_virus:*
13: sp_vertebrate:*
14: sp_unclassified:*
15: sp_virus:*
16: sp_bacteriap:*
17: sp_archaeap:*
```

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

## SUMMARIES

Result	No.	Score	Query	Match	Length	DB	ID	Description
1	654	100.0	191	4	Q96L82		Q96L82 homo sapien	
2	654	100.0	191	4	Q96KJ0		Q96KJ0 homo sapien	
3	654	100.0	191	6	Q95NE5		Q95ne5 macaca fasc	
4	605	92.5	126	6	Q9BDP7		Q9bdp7 macaca mula	
5	591.5	90.4	189	6	Q95LQ4		Q95lq4 felis silve	
6	584.5	89.4	190	6	077643		077643 ovis arles	
7	576.5	88.1	190	11	Q9QX39		Q9qx39 spalax leuc	
8	568.5	86.9	190	11	Q91ZEL		Q91zel rattus norv	
9	531	81.2	169	4	Q96NWS		Q96nws homo sapien	
10	510.5	78.1	141	11	Q70123		Q70123 mus musculu	
11	449	68.7	148	13	Q42571		Q42571 xenopus lae	
12	449	68.7	194	13	Q42572		Q42572 xenopus lae	
13	426.5	65.2	118	6	Q9MZB1		Q9mzb1 ovis arles	
14	422	64.5	124	6	Q9GK00		Q9gk00 callithrix	
15	379	58.0	142	11	Q9ERL6		Q9erl6 mesocricetu	
16	368.5	56.3	110	11	Q88911		Q88911 rattus norv	

17	339	51.8	68	6	Q97500	Q97500	oryctolagus
18	322.5	49.3	144	13	Q73822	Q73822	brachydanio
19	322.5	49.3	188	13	Q73682	Q73682	brachydanio
20	311	47.6	75	6	Q18843	Q18843	oryctolagus
21	292	44.6	78	6	Q9N1S2	Q9N1S2	capreolus c
22	292	44.6	123	6	Q9N1S1	Q9N1S1	capreolus c
23	254	38.8	146	13	Q90X23	Q90x23	bothrops ja
24	243	37.2	146	13	Q90X24	Q90x24	bothrops in
25	200	30.6	132	12	Q9YMF3	Q9ymf3	orf virus.
26	155.5	23.8	326	11	Q91ZE4	Q91ze4	rattus norv
27	155	23.7	418	13	Q57352	Q57352	coturnix co
28	149.5	22.9	326	11	Q91ZH6	Q91zh6	meriones un
29	149.5	22.9	415	11	Q91ZE3	Q91ze3	rattus norv
30	148	22.6	420	6	Q9XS50	Q9xs50	bos taurus
31	131	20.0	23	11	Q91V21	Q91v21	rattus norv
32	123	18.8	22	4	Q9UNS8	Q9uns8	homo sapien
33	121	18.5	301	5	Q9VWP6	Q9vwp6	drosophila
34	121	18.5	314	5	Q9BLX1	Q9blx1	drosophila
35	121	18.5	325	5	Q960Z8	Q960z8	drosophila
36	120	18.3	23	11	Q91ZE2	Q91ze2	rattus norv
37	94	14.4	185	4	Q15354	Q15354	homo sapien
38	94	14.4	210	6	Q29613	Q29613	felis silve
39	94	14.4	226	4	Q9UF23	Q9uf23	homo sapien
40	93	14.2	345	13	Q91946	Q91946	gallus gall
41	90	13.8	149	11	Q9WQ07	Q9wvq7	mesocricetu
42	90	13.8	183	11	Q63740	Q63740	rattus ratt
43	89	13.6	68	4	Q9UE57	Q9ue57	homo sapien
44	89	13.6	118	11	Q9CU96	Q9cu96	mus musculu
45	89	13.6	196	11	Q99L56	Q99l56	mus musculu

## ALIGNMENTS

RESULT	1
Q96L82	
ID Q96L82	PRELIMINARY; PRT; 191 AA.
AC Q96L82;	
DT 01-DEC-2001 (TREMBlrel. 19, Created)	
DT 01-DEC-2001 (TREMBlrel. 19, last sequence update)	
DT 01-DEC-2001 (TREMBlrel. 19, last annotation update)	
DE VASCULAR ENDOTHELIAL GROWTH FACTOR.	
GN VEGF.	
OS Homo sapiens (Human).	
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi	
OC Mammalia; Eutheria; Primates; Catarrhini; Homnidae; Homo.	
OX NCBI_TaxID-9606;	
RN [1]	
RP SEQUENCE FROM N.A.	
RA Liu J., Peng X., Yuan J., Qiang B.;	
RL *Cloning of vascular endothelial growth factor (VEGF) cDNA.*;	
RT Submitted (JUL-2001) to the EMBL/GenBank/DBJ databases.	
DR EMBL; AY047581; AAK95847.1; -.	
SQ SEQUENCE 191 AA; 22314 MW; CCE57097DD3779BD CRC64;	

	Query Match	100.0%;	Score 654;	DB 4;	Length 191;	
	Best Local Similarity	100.0%;	Pred. No. 3.7e-67;			
	Matches 116;	Conservative 0;	Mismatches 0;	Indels 0;	Gaps 0;	
QY	1	MNFLTSMVHWSLALLLLYLHHA	KWSQAAPMAE	GGGQNNHHEVVKFMDVYQ	RSYCHPIETLVD 60	
Db	1	MNFLTSMVHWSLALLLLYLHHA	KWSQAAPMAE	GGGQNNHHEVVKFMDVYQ	RSYCHPIETLVD 60	
QY	61	IFQEYEPDEIEIYIFKPS	CVPLMR	CGGCCCNDEGLE	ECVPTEESNITMQIMRIKPHQGQ 116	
Db	61	IFQEYEPDEIEIYIFKPS	CVPLMR	CGGCCCNDEGLE	ECVPTEESNITMQIMRIKPHQGQ 116	
RESULT	2					
ID	Q96KJ0	PRELIMINARY;	PRT;	191	AA.	
AC	Q96KJ0;					

DT 01-DEC-2001 (TREMBlrel. 19, Created)  
DT 01-DEC-2001 (TREMBlrel. 19, Last sequence update)  
DT 01-DEC-2001 (TREMBlrel. 19, Last annotation update)  
DE VASCULAR ENDOTHELIAL GROWTH FACTOR 165B.  
OS Homo sapiens (Human).  
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
OC Mammalia; Eutheria; Primates; Catarrhini; Homnidae; Homo.  
OX NCBI\_TaxID=9606;  
RN [1]  
RP SEQUENCE FROM N.A.  
RC TISSUE-KIDNEY;  
RA Sugiono M., Winkler M., Gillatt D., Harper S.J., Bates D.O.;  
RT "A new isoform of vascular endothelial growth factor mRNA is down-  
regulated in renal tumors."  
RL (In) Unknown A. (eds.);  
RL PROCEEDINGS OF THE WORLD CONGRESS ON MICROCIRCULATION 7, pp.3-0,  
Unknown Publisher (2001).  
DR EMBL; AF430806; AAL27435.1;  
SO SEQUENCE 191 AA; 22258 MW; D25243E540AC79BD CRC64;

Query Match 100.0%; Score 654; DB 4; Length 191;  
Best Local Similarity 100.0%; Pred. No. 3.7e-67;  
Matches 116; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 MNFLSWVHWSLALLYLHAKWSQAAPMAEGGQNHHEVVKFMDVYQRSYCHPIETLVD 60  
DB 1 MNFLSWVHWSLALLYLHAKWSQAAPMAEGGQNHHEVVKFMDVYQRSYCHPIETLVD 60  
QY 61 IFQEYPPDEIEYIFKPCVPLMRCGCCNDEGLECVPTESNITMQIMRIKPHQGQ 116  
DB 61 IFQEYPPDEIEYIFKPCVPLMRCGCCNDEGLECVPTESNITMQIMRIKPHQGQ 116

## RESULT 3

Q95NE5 PRELIMINARY; PRT; 191 AA.

AC Q95NE5;  
DT 01-DEC-2001 (TREMBlrel. 19, Created)  
DT 01-DEC-2001 (TREMBlrel. 19, Last sequence update)  
DT 01-DEC-2001 (TREMBlrel. 19, Last annotation update)  
DE SIMVEGF165.  
GN SIMVEGF165.  
OS Macaca fascicularis (Crab eating macaque) (Cynomolgus monkey).  
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
OC Mammalia; Eutheria; Primates; Catarrhini; Cercopitheciidae;  
OC Cercopitheciinae; Macaca.  
OX NCBI\_TaxID=9541;  
RN [1]  
RP SEQUENCE FROM N.A.  
RX MEDLINE=96245208; PubMed=8641836;  
RA Shima D.T., Gougos A., Miller J.W., Tolentino M., Robinson G.,  
RA Adams A.P., D'Amore P.A.;  
RT "Cloning and mRNA expression of vascular endothelial growth factor in  
ischemic retinas of Macaca fascicularis."  
RL Invest. Ophthalmol. Vis. Sci. 37:1334-1340(1996).  
DR EMBL; S82167; AAB47118.1;  
SO SEQUENCE 191 AA; 22314 MW; CCE57097DD3779BD CRC64;

Query Match 100.0%; Score 654; DB 6; Length 191;  
Best Local Similarity 100.0%; Pred. No. 3.7e-67;  
Matches 116; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 MNFLSWVHWSLALLYLHAKWSQAAPMAEGGQNHHEVVKFMDVYQRSYCHPIETLVD 60  
DB 1 MNFLSWVHWSLALLYLHAKWSQAAPMAEGGQNHHEVVKFMDVYQRSYCHPIETLVD 60  
QY 61 IFQEYPPDEIEYIFKPCVPLMRCGCCNDEGLECVPTESNITMQIMRIKPHQGQ 116  
DB 61 IFQEYPPDEIEYIFKPCVPLMRCGCCNDEGLECVPTESNITMQIMRIKPHQGQ 116

RESULT 4  
Q9BDP7 PRELIMINARY; PRT; 126 AA.

AC Q9BDP7;  
DT 01-JUN-2001 (TREMBlrel. 17, Created)  
DT 01-JUN-2001 (TREMBlrel. 17, Last sequence update)  
DT 01-DEC-2001 (TREMBlrel. 19, Last annotation update)  
DE VASCULAR ENDOTHELIAL GROWTH FACTOR (FRAGMENT).  
OS Macaca mulatta (Rhesus macaque).  
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
OC Mammalia; Eutheria; Primates; Catarrhini; Cercopitheciidae;  
OC Cercopitheciinae; Macaca.  
OX NCBI\_TaxID=9544;  
RN [1]  
RP SEQUENCE FROM N.A.  
RA Hazard T.M., Navek N.R., Jia Y., Stouffer R.L.;  
RT "Rhesus macaque VEGF mRNA sequence."  
RL Submitted (JAN-2001) to the EMBL/GenBank/DBJ databases.  
DR EMBL; AF339737; AAK26379.1;  
DR HSSP; P15692; 2VPE.  
DR InterPro; IPR00072; PDGF.  
DR Pfam; PF00341; PDGF; 1.  
DR ProDom; PD001629; PDGF; 1.  
DR SMART; SM00141; PDGF; 1.  
DR PROSITE; PS00249; PDGF\_1; 1.  
DR PROSITE; PS50278; PDGF\_2; 1.  
FT NON\_TER 1 1  
FT NON\_TER 126 126  
SO SEQUENCE 126 AA; 14599 MW; 1175F2386A883BCF CRC64;

Query Match 92.5%; Score 605; DB 6; Length 126;  
Best Local Similarity 99.1%; Pred. No. 9.7e-62;  
Matches 108; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 8 VHSALALLYLHAKWSQAAPMAEGGQNHHEVVKFMDVYQRSYCHPIETLVDIFQEYPD 67  
DB 1 VHSALALLYLHAKWSQAAPMAEGGQNHHEVVKFMDVYQRSYCHPIETLVDIFQEYPD 60  
QY 68 EIEYIFKPCVPLMRCGCCNDEGLECVPTESNITMQIMRIKPHQGQ 116  
DB 61 EIEYIFKPCVPLMRCGCCNDEGLECVPTESNITMQIMRIKPHQGQ 109

## RESULT 5

Q95IQ4 PRELIMINARY; PRT; 189 AA.

AC Q95IQ4;  
DT 01-DEC-2001 (TREMBlrel. 19, Created)  
DT 01-DEC-2001 (TREMBlrel. 19, Last sequence update)  
DT 01-DEC-2001 (TREMBlrel. 19, Last annotation update)  
DE VASCULAR ENDOTHELIAL GROWTH FACTOR.  
OS Felis silvestris catus (Cat).  
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
OC Mammalia; Eutheria; Carnivora; Fissipedia; Felidae; Felis.  
OX NCBI\_TaxID=9685;  
RN [1]  
RP SEQUENCE FROM N.A.  
RA Koga L., Kobayashi Y., Yazawa M., Masuda K., Ohno K., Tsujimoto H.;  
RT "Nucleotide sequence and expression of the feline vascular endothelial  
growth factor."  
RL Submitted (SEP-2001) to the EMBL/GenBank/DBJ databases.  
DR EMBL; AB071947; BAB68520.1;  
SO SEQUENCE 189 AA; 22193 MW; C1E4646759AB3FD6 CRC64;

Query Match 90.4%; Score 591.5; DB 6; Length 189;  
Best Local Similarity 93.1%; Pred. No. 5.4e-60;  
Matches 108; Conservative 1; Mismatches 6; Indels 1; Gaps 1;

QY 1 MNFLSWVHWSLALLYLHAKWSQAAPMAEGGQNHHEVVKFMDVYQRSYCHPIETLVD 60  
DB 1 MNFLSWVHWSLALLYLHAKWSQAAPMAD-GEHKPHEVVKFMDVYQRSYCHPIETLVD 59

```
QY 61 IFQEYDEIEYIFKPSVPLMRGCGCCNDEGLECVPTESNITMIMRIKPHOGH 116
      |||||||
Db 60 IFQEYDEIEYIFKPSVPLMRGCGCCNDEGLECVPTESNITMIMRIKPHOGH 115

RESULT 6
077643 PRELIMINARY; PRT; 190 AA.
ID 077643
AC 077643;
DT 01-NOV-1998 (TREMBLrel. 08, Created)
DT 01-NOV-1998 (TREMBLrel. 08, Last sequence update)
DT 01-JUN-2001 (TREMBLrel. 17, Last annotation update)
DE VASCULAR ENDOTHELIAL GROWTH FACTOR.
GN VEGF.
OS Ovis aries (Sheep).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidae;
OC Bovidae; Caprinae; Ovis.
OX NCBI_TaxID=9940;
RN [1]
RP SEQUENCE FROM N.A.
RC STRAIN-COLOMBA-RAMBOULLIET;
RA Cheung C.Y., Brace R.A.;
RT "Ovine vascular endothelial growth factor: Nucleotide sequence and
expression in fetal tissues.";
RT Growth Factors 0:0-0(1998).
RL EMBL; AF071015; AAC23608.1; -.
DR HSSP; P15692; 1VGH.
DR InterPro; IPR000072; PDGF.
DR Pfam; PF00341; PDGF; 1.
DR ProDom; PD001629; PDGF; 1.
DR SMART; SM00141; PDGF; 1.
DR PROSITE; PS00249; PDGF_1; 1.
DR PROSITE; PS50278; PDGF_2; 1.
SQ SEQUENCE 190 AA; 22342 MW; 0D5E3B3E5C53E739 CRC64;

Query Match 89.4%; Score 584.5; DB 6; Length 190;
Best Local Similarity 91.4%; Pred. No. 3.5e-59;
Matches 106; Conservative 3; Mismatches 6; Indels 1; Gaps 1;

QY 1 MNFLSWVHWSLALLYLHAKWSQAAPMAEGGQNHHEVVKFMDVYQRSYCHPIETLVD 60
      |||||||
Db 1 MNFLSWVHWSLALLYLHAKWSQAAPMAE-GGQKPEHVMKFMVYQRSFCRPIETLVD 59
      |||||||

QY 61 IFQEYDEIEYIFKPSVPLMRGCGCCNDEGLECVPTESNITMIMRIKPHOGH 116
      |||||||
Db 60 IFQEYDEIEYIFKPSVPLMRGCGCCNDEGLECVPTESNITMIMRIKPHOGH 115

RESULT 7
090X39 PRELIMINARY; PRT; 190 AA.
ID 090X39
AC 090X39;
DT 01-MAY-2000 (TREMBLrel. 13, Created)
DT 01-MAY-2000 (TREMBLrel. 13, Last sequence update)
DT 01-JUN-2001 (TREMBLrel. 17, Last annotation update)
DE VASCULAR ENDOTHELIAL GROWTH FACTOR.
GN VEGF.
OS Spalax leucodon ehrenbergi (Ehrenberg's mole rat).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Spalacinae;
OC Spalax.
OX NCBI_TaxID=30637;
RN [1]
RP SEQUENCE FROM N.A.
RC MEDLINE=99313148; PubMed=10386577;
RA Avivi A., Resnick M.B., Nevo E., Joel A., Levy A.P.;
RT "Adaptive hypoxic tolerance in the subterranean mole rat Spalax
ehrenbergi: the role of vascular endothelial growth factor.";
RL FEBS Lett. 452:133-140(1999).
DR EMBL; AF186236; AAD56245.1; -.
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DR HSSP; P15692; 2VPE.
DR InterPro; IPR000072; PDGF.
DR Pfam; PF00341; PDGF; 1.
DR ProDom; PD001629; PDGF; 1.
DR SMART; SM00141; PDGF; 1.
DR PROSITE; PS00249; PDGF_1; 1.
DR PROSITE; PS50278; PDGF_2; 1.
SQ SEQUENCE 190 AA; 22488 MW; 2228383BC65F0BFE CRC64;

Query Match 88.1%; Score 576.5; DB 11; Length 190;
Best Local Similarity 89.7%; Pred. No. 2.9e-58;
Matches 104; Conservative 4; Mismatches 7; Indels 1; Gaps 1;

QY 1 MNFLSWVHWSLALLYLHAKWSQAAPMAEGGQNHHEVVKFMDVYQRSYCHPIETLVD 60
      |||||||
Db 1 MNFLSWHWTLALLYLHAKWSQAAPTAE-GEQKPEHVMKFMVYQRSYCHPIETLVD 59
      |||||||

QY 61 IFQEYDEIEYIFKPSVPLMRGCGCCNDEGLECVPTESNITMIMRIKPHOGH 116
      |||||||
Db 60 IFQEYDEIEYIFKPSVPLMRGCGCCNDEALECVPTESNITMIMRIKPHOGH 115

RESULT 8
091ZE1 PRELIMINARY; PRT; 190 AA.
ID 091ZE1
AC 091ZE1;
DT 01-DEC-2001 (TREMBLrel. 19, Created)
DT 01-DEC-2001 (TREMBLrel. 19, Last sequence update)
DT 01-DEC-2001 (TREMBLrel. 19, Last annotation update)
DE VASCULAR ENDOTHELIAL GROWTH FACTOR.
GN VEGF.
OS Rattus norvegicus (Rat).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Rattus.
OX NCBI_TaxID=10116;
RN [1]
RP SEQUENCE FROM N.A.
RC STRAIN-SPRAGUE-DAWLEY;
RA Marion S., Lee T.-C.;
RT "Cloning of multiple VEGF splice variants from hypoxic neonatal rat
cardiomyocytes.";
RT Submitted (APR-2001) to the EMBL/GenBank/DBJ databases.
RL EMBL; AY033506; AAL07526.1; -.
SQ SEQUENCE 190 AA; 22396 MW; 589374010441F377 CRC64;

Query Match 86.9%; Score 568.5; DB 11; Length 190;
Best Local Similarity 88.8%; Pred. No. 2.4e-57;
Matches 103; Conservative 2; Mismatches 10; Indels 1; Gaps 1;

QY 1 MNFLSWVHWSLALLYLHAKWSQAAPMAEGGQNHHEVVKFMDVYQRSYCHPIETLVD 60
      |||||||
Db 1 MNFLSWHWTLALLYLHAKWSQAAPTE-GEQKAHEVVKFMDVYQRSYCHPIETLVD 59
      |||||||

QY 61 IFQEYDEIEYIFKPSVPLMRGCGCCNDEGLECVPTESNITMIMRIKPHOGH 116
      |||||||
Db 60 IFQEYDEIEYIFKPSVPLMRGCGCCNDEALECVPTESNITMIMRIKPHOGH 115

RESULT 9
096NW5 PRELIMINARY; PRT; 169 AA.
ID 096NW5
AC 096NW5;
DT 01-DEC-2001 (TREMBLrel. 19, Created)
DT 01-DEC-2001 (TREMBLrel. 19, Last sequence update)
DT 01-DEC-2001 (TREMBLrel. 19, Last annotation update)
DE VASCULAR ENDOTHELIAL GROWTH FACTOR (FRAGMENT).
GN VEGF.
OS Homo sapiens (Human).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Primates; Catarrhini; Homiidae; Homo.
OX NCBI_TaxID=9606;
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RN [1]  
RP SEQUENCE FROM N.A.  
RA Rieder M.J., Armel T.Z., Carrington D.P., Chung M.-W., Lee K.L.,  
RA Poel C.L., Toth E.J., Yi Q., Nickerson D.A.;  
RL Submitted (OCT-2001) to the EMBL/GenBank/DBJ databases.  
DR EMBL; AF437895; AAL27630.1; -  
FT NON\_TER 1  
SQ SEQUENCE 169 AA; 19638 MW; 62832BE6C0D69A9 CRC64;

Query Match 81.2%; Score 531; DB 4; Length 169;  
Best Local Similarity 100.0%; Pred. No. 4.2e-53;  
Matches 94; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 23 WSGAAPMAEGGGQNHHEVVKFMDVYQRSYCHPIETLVDFQEYPPDEIEYIFKPSVPLMR 82  
Db 1 WSGAAPMAEGGGQNHHEVVKFMDVYQRSYCHPIETLVDFQEYPPDEIEYIFKPSVPLMR 60

QY 83 CGGCCNDEGLECVPTESNITMQIMRIKPHOGH 116  
Db 61 CGGCCNDEGLECVPTESNITMQIMRIKPHOGH 94

RESULT 10  
070123 PRELIMINARY; PRT; 141 AA.

AC 070123;  
DT 01-AUG-1998 (TREMBLrel. 07, Created)  
DT 01-AUG-1998 (TREMBLrel. 07, last sequence update)  
DT 01-DEC-2001 (TREMBLrel. 19, last annotation update)  
DE VEGF115.  
GN VEGF.  
OS Mus musculus (Mouse).  
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.  
OX NCBI\_TaxID=10090;

RN [1]  
RP SEQUENCE FROM N.A.  
RC STRAIN-ICR;  
RX MEDLINE=95101726; PubMed=7803491;  
RA Sugihara T., Kaul S.C., Mitsui Y., Wadhwa R.;  
RT "Enhanced expression of multiple forms of VEGF is associated with  
RT spontaneous immortalization of murine fibroblasts.";  
RL Blochim. Biophys. Acta 1224:365-370(1994).  
RN [2]  
RP SEQUENCE FROM N.A.

RC STRAIN-ICR;  
RX MEDLINE=98112857; PubMed=9446618;  
RA Sugihara T., Wadhwa R., Kaul S.C., Mitsui Y.;  
RT "A novel alternatively spliced form of murine vascular endothelial  
RT growth factor, VEGF 115.";  
RL J. Biol. Chem. 273:3033-3038(1998).  
DR EMBL; U50279; AAC05442.1; -  
DR HSSP; P15692; IVP.  
DR MGD; MGI:103178; Vegf.  
DR InterPro; IPR000072; PDGF.  
DR Pfam; PF00341; PDGF; 1.  
DR ProDom; PD001629; PDGF; 1.  
DR SMART; SM00141; PDGF; 1.  
DR PROSITE; PS00249; PDGF\_1; 1.  
DR PROSITE; PS50278; PDGF\_2; 1.  
SQ SEQUENCE 141 AA; 15550 MW; A27C4EF5A7071338 CRC64;

Query Match 78.1%; Score 510.5; DB 11; Length 141;  
Best Local Similarity 86.8%; Pred. No. 7.6e-51;  
Matches 92; Conservative 3; Mismatches 10; Indels 1; Gaps 1;

QY 1 MNFLSWHMSLALLYLHAKWSQAAPMAEGGGQNHHEVVKFMDVYQRSYCHPIETLV 60  
Db 1 MNFLSWHMSLALLYLHAKWSQAAPTE-GEQKSHVYKFMVYQRSYCHPIETLV 59  
QY 61 IFQEYPPDEIEYIFKPSVPLMRGCGCCNDEGLECVPTESNITMQI 106

Db 60 IFQEYPPDEIEYIFKPSVPLMRGCGCCNDEALECVPTESNITMQV 105

RESULT 11  
042571 PRELIMINARY; PRT; 148 AA.

AC 042571;  
DT 01-JAN-1998 (TREMBLrel. 05, Created)  
DT 01-JAN-1998 (TREMBLrel. 05, last sequence update)  
DT 01-DEC-2001 (TREMBLrel. 19, last annotation update)  
DE VASCULAR ENDOTHELIAL GROWTH FACTOR 122.  
GN VEGF.  
OS Xenopus laevis (African clawed frog).  
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
OC Amphibia; Batrachia; Anura; Mesobatrachia; Pipidoidea; Pipidae;  
OC Xenopodinae; Xenopus.  
OX NCBI\_TaxID=8355;

RN [1]  
RP SEQUENCE FROM N.A.  
RA Cleaver O., Tonissen K.F., Saha M.S., Krieg P.A.;  
RT "Neovascularization of the Xenopus embryo.";  
RL Dev. Dyn. 0:0-0(1997).  
DR EMBL; AF008593; AAB63679.1; -  
DR HSSP; P15692; IVP.  
DR InterPro; IPR000072; PDGF.  
DR Pfam; PF00341; PDGF; 1.  
DR ProDom; PD001629; PDGF; 1.  
DR SMART; SM00141; PDGF; 1.  
DR PROSITE; PS00249; PDGF\_1; 1.  
DR PROSITE; PS50278; PDGF\_2; 1.  
SQ SEQUENCE 148 AA; 17234 MW; 4AD153CA2F8B1E95 CRC64;

Query Match 68.7%; Score 449; DB 13; Length 148;  
Best Local Similarity 71.6%; Pred. No. 9.1e-44;  
Matches 83; Conservative 8; Mismatches 25; Indels 0; Gaps 0;

QY 1 MNFLSWHMSLALLYLHAKWSQAAPMAEGGGQNHHEVVKFMDVYQRSYCHPIETLV 60  
Db 1 MNFLPSWIHWGLAVLLYIPHAOLSGAAPMPGEGDHKPFYVVKFLKYERSMCQVREILVD 60

QY 61 IFQEYPPDEIEYIFKPSVPLMRGCGCCNDEGLECVPTESNITMQIMRIKPHOGH 116  
Db 61 IFQEYPPDEIEYIFKPSVPLMRGCGCCNDESLIECVPTESNITMQIMRIKPHISGH 116

RESULT 12  
042572 PRELIMINARY; PRT; 194 AA.

AC 042572;  
DT 01-JAN-1998 (TREMBLrel. 05, Created)  
DT 01-JAN-1998 (TREMBLrel. 05, last sequence update)  
DT 01-DEC-2001 (TREMBLrel. 19, last annotation update)  
DE VASCULAR ENDOTHELIAL GROWTH FACTOR 196.  
GN VEGF.  
OS Xenopus laevis (African clawed frog).  
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
OC Amphibia; Batrachia; Anura; Mesobatrachia; Pipidoidea; Pipidae;  
OC Xenopodinae; Xenopus.  
OX NCBI\_TaxID=8355;

RN [1]  
RP SEQUENCE FROM N.A.  
RA Cleaver O., Tonissen K.F., Saha M.S., Krieg P.A.;  
RT "Neovascularization of the Xenopus embryo.";  
RL Dev. Dyn. 0:0-0(1997).  
DR EMBL; AF008594; AAB63680.1; -  
DR HSSP; P15692; IVG.  
DR InterPro; IPR000072; PDGF.  
DR Pfam; PF00341; PDGF; 1.  
DR ProDom; PD001629; PDGF; 1.  
DR SMART; SM00141; PDGF; 1.  
DR PROSITE; PS00249; PDGF\_1; 1.



Db	1	VYQSYCHPIETLVDFQEYPDEIEYIFKPSCVPLMRGCGCCSDEALECVPTSESNTMQ	60
OY	106	IMRIKPHQGOH	116
		:	
Db	61	IMRYKPHQSOH	71

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